



FRIDAY, JUNE 2.

## Contributions.

## Operating Expenses.—Some Suggestions.

TO THE EDITOR OF THE RAILROAD GAZETTE:

Supplemental to your able article of May 12, on "Operating Expenses," I beg to submit a most emphatic commendation of your suggestion as to "clerk hire," and a protest against the superficial economy of so many superintendents and managers, in being governed by appearances, instead of results, in the matter of clerical help and the keeping proper record of working details.

I do not believe there are a dozen railroads in this country where a competent clerk to each three or four hundred miles of track would not save twice the amount of his salary in keeping "A Tool and Supply Record" of the track force, in such shape as to show at a glance, in detail, the tools and supplies furnished any given section or force as well as the number or amount on hand. Almost every division superintendent or road-master who reads this will stop to mentally exclaim, "I keep just such a record now," but if he was once a section foreman or supervisor, he knows that tools are distributed from moving freight and passenger trains—those that are not delivered to the proper section are put off at the next section or station, with the address torn off to conceal the non-delivery and appropriated by the first man that finds them, and hidden out of sight for emergencies; that tools sent in for repairs are thrown into a moving caboose and dumped out of it at the end of the run, and possibly reach the shops after a time, with nothing to denote where they came from; in short, that his tool report bears no relation whatever to the tools on hand; its totals are just as applicable to any other division or road as to the one for which they are intended; and it is made out as a matter of routine, expected by the superintendent's clerk.

Let some live, progressive superintendent put on a careful, correct clerk, who will take a pride in his work, and, furnishing him with a properly ruled "Tool and Supply Record" book (a page of which should retain the records of a section for one year), issue an order in substance as follows:

"1. Road-masters (or other proper officers) will at once go over the track under their charge and make out a complete inventory of all tools, supplies and company property belonging to each section, taking foreman's receipt therefor on proper blank and sending it to this office; also, sending to shops all tools that are not in good order.

"2. Hereafter, when tools and supplies are shipped to section foreman, the store-keeper, or billing-clerk will make out on proper blank triplicate bill or shipping ticket, the first coupon of which will be at once forwarded to this office, the second to be signed by section foreman when tools or supplies are received, or left at section house by conductor making delivery in absence of foreman, to be signed and sent in by foreman, when he has checked up the articles charged to him; the third to be forwarded to this office by conductor, stating date and time of delivery.

"3. Train-master will arrange for trains to stop on signal on different portions of the road and receive tools sent in for repairs, the conductor signing triplicate receipt therefor, retaining and sending to this office the first coupon, the foreman mailing the second, and retaining the third or stub as his receipt.

"4. Section foreman on proper blanks must keep in duplicate "Broken and Worn-out Tool Record," accounting in detail for each tool worn out or broken that is not sent to the shops for repairs; the first coupon of which, on approval of supervisor, will be sent to this office.

"5. When tools are drawn and distributed by supervisors or road masters, the first coupon of their receipts must be sent to this office by storekeeper, the tools so distributed remaining charged against the party drawing them, until he files in this office the receipts of the foreman to whom they were delivered.

"6. Discharged or resigning foremen will not hereafter be paid off until they have filed in this office, approved by road-master or supervisor, the receipt of their successor for the tools and supplies to balance the accounts of their sections."

A superintendent who will do this will soon realize that as section foremen are convinced that such a record is correctly kept, and that their standing and reputation with their superiors, depend largely on its exhibit, the emulation it will excite among the good men in an economical use and care of company property will alone make the clerk's salary a good investment, in addition to the check it will be on the inefficient and the "weeding-out" it will produce among them.

I have no figures to prove the saving that would result; but I knew a division where a similar system during the "hurray" of rapid construction and organization of the operating forces proved itself a "grand success" when applied to train and station supplies and outfit; securing the return of broken lanterns, switch ropes, chains, lamps, frogs, worn-out brasses, etc., and a careful economy of their use that would have paid well for the expense, had any been necessary, though it was kept up at the train dispatcher's desk, without additional salary.

I will state an illustration of the value of clerical help, which may prove suggestive in connection with the second

single largest item of operating expenses of the road referred to by you: On a road of 450 miles, a new man coming in charge of the fuel (in connection with the ties and stock damage claims) increased his office pay-roll 300 per cent.; but in two years reduced the fuel disbursements over 40 per cent. upon equalized factors; the larger portion of which he credited to a strict system of checks and accounting for every cord of wood and pound of coal received and used, and the spirit of rivalry engendered thereby among those who used the fuel. An exact statement of the fuel consumed by each engine during the month was hung up in all the round-houses by the 10th or 12th of the month following, in which nothing was estimated, and upon the correctness of which each engineer had a check in his cab. When that fuel agent was promoted to what the management thought more important duties, a more economical régime was adopted, and in less than a year the engine miles to cord and ton were almost back to the old average; and in less than eighteen months were below it.

I beg to widen the scope of duties of the "practical man" of your concluding paragraph. Kirkman is authority that "The track of a railway company affords, it may be said, the largest single item of expense it has." And one of those to whom we are to look for a reduction in operating expenses (more particularly upon the roads of the South, where the life-time of wooden bridges and all wood material is so short; and road-beds and banks, not freezing in winter, are always washing and filling the ditches) is the "practical man" who will apply "a process of adaptation" to some one of the many wood-preserving processes to piling timber and bridge material and make it available in the repairs of our present structures, so that they, repaired as required, instead of being torn down and wasted, may become permanent in the literal sense of that word—the "practical man" who will ditch and drain our track and dispose of the waste dirt in accordance with the spirit of progressive economy exhibited in other branches of labor-saving industries.

While the farmer of to-day threshes his grain by steam, ignorant of what a flail is, unless he has seen one in the loft of his grandfather's barn; the printer has consigned his Franklin press to the museum; and the carpenter forgotten there were ever such means as whip-saw and pit for manufacturing his lumber, in taking care of our banks, ditching and draining track we are just where we were in the days of flails, lever hand presses and whip-saws and pits. The same laborer, with the same time-killing gait and shovel (unfortunately for our railroad owners, some friend has patented an iron handle to the old shovel, with which the motion of tamping ties on dirt and gravel road-bed is gone through with), throws the same dirt out of the same ditch, which is washed back by the first rain, again filling up the ditch and holding the water, thus softening the track, making loose joints, rotting the ties and shortening their life from 10 to 25 per cent., "killing" the rails and wearing out rolling stock and motive power just the same as 40 years ago.

So while your "practical man" is perfecting machinery to substitute muscle in handling freight at stations, increasing the hauling power of his engines and the carrying capacity of his cars, please whisper in his ear the necessity of something to reduce the expense of maintaining the wooden bridges and structures of roads that cannot afford stone and iron; and that there are many roads in the West and South that have more 20-ton cars than 20-ton track, and will continue to have until their road-bed can be drained and kept dry; and the greatest factor in accomplishing this result will be an improvement on the old shovel of 40 years ago; and ask him to devote his odd moments to the subject and give us something that will stand with credit to the maintenance of way department beside the threshing machine, the cylinder press and the gang saw as a labor-saver and superior workman.

D. E. GROVE.

## Papers on Painting.—No. 6.

BY CHARLES L. CONDIT.

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## THE CAUSES OF DECAY IN PAINT AND VARNISH.

Having discussed briefly the kinds of decay to which paint and varnish are subject, we may now enter more particularly into the causes of these:

*Perishing.*—This is not a serious evil, because it can be remedied. Sunlight—not the scattered light of a bright day, but the sun's direct rays—must be given a large place as cause. "There is a curious proof of the effect of the sun on varnish in the room where I am writing. A piece of carved oak furniture is so placed that one side of it is often in the full sunshine and the other generally in the shade. It was varnished about 20 years ago with an oleagenous solution of copal. This has now entirely disappeared, having been as effectually removed by the sun as it would have been by some powerful detergent, but the other side has retained its varnish well."—Hamerton.

Linseed oil, as we have seen, contains one-fifth of not-drying acids, which keep the oil softer. The sunlight causes the oxygen of the air to change these into rancid oil acids which fly away, leaving the oil harder and more brittle. As a matter of experience, a roof painted in October will last about as long as a roof painted six months later—i. e., in the May following. The entire winter is saved in time. The same is true to a much less degree with house painting, and all painted work exposed to direct sunshine.

It must not be supposed that this is entirely due to the loss of not-drying oil acids. On the contrary, it is in large measure due to the over drying of the linseed-oil acids. They become dried up too much when exposed to a hot sun, losing all their elasticity. Nevertheless, on iron and tin, and es-

pecially zinc, the loss of the not-drying oil acids is a very serious matter—much more serious than upon wood.

Manganese driers, especially in the sun, are to be accused of a tendency to destroy paint and varnish, while lead (red lead) has somewhat of a preservative action. Manganese driers, there is strong reason to believe, take up oxygen from the air and give it up to the oil. If this be the case, the natural action of sunlight will be very much increased by any manganese in the oil. We have discussed this matter fully in another place, but it must after all be settled by experience. Let no man, however, appeal to his experience to settle such a matter unless he can give definite and comparative statements. Few men know how valueless are mere impressions from a great mass of facts, which they have never carefully compared with each other. This is a matter of relative time, of measurement, and must be got at by some sort of measure.

Finally, in the case of varnish, water, as has been shown, causes the gums to separate from the oil. Probably Kauri gum is much more quickly affected than the African copal.

The pigments, white lead, etc., will be treated of by themselves; but it may here be said that, except those which unite chemically with the oil, the question of the lasting of paint in regard to different substances used with the oil is a question how much these are affected—not in color, but in substance—by light, air and water. Zinc white, for instance, is (probably) affected by the carbonic acid in rain water.

The fine particles of pigment mixed with the oil serve to hide the oil and protect it from the air; and if these are stable, so is the paint. Iron paints (pure) must be regarded as the most lasting.

*Wearing Away.*—Aside from perishing from chemical causes (light and air and water), there is a wearing process at work from rubs and injuries of all kinds, but especially from the friction of sand, hail and rain blown against the paint by the wind. On cars, especially, the paint and varnish must withstand the action of a true sand-blast composed of sand and cinders blown violently against it. The ends of cars suffer severely in this way; and for this reason need a hard paint. The "gums" with which varnish is made serve to harden it, and especially to protect it from the oxygen of the air. Oxygen uniting with the gums tends in some measure to harden them, so that parts under the surface are protected from the air. A hard paint is needed for nearly all exposed surfaces except iron, where hardness is a great injury unless united (as it can be) with great elasticity. Hardness and elasticity are opposing elements in a paint, yet it is possible to have both.

In this connection, on cars, may be mentioned an influence which has some effect also in cities. Coal contains sulphur, which, with water, produces sulphuric acid. Therefore bits of wet coal and smoke must have a considerable destructive influence.

I have seen no proof that in small quantities this influence on lead paints is injurious otherwise than by blackening them. It does not necessarily destroy the substance of the paint.

## THE CAUSES OF THE CRACKING OF VARNISH.

As soon as the general causes, of which we have been speaking, have fairly begun their work of destruction, the disease of cracking sets in and rapidly urges on the decay, because through it the air and water reach the interior of the paint and varnish and even the wood. One might easily grow eloquent upon the causes of cracking. In general, however, there are two—want of elasticity and too much and a too unequal contracting force.

The elasticity of oil may apparently be destroyed in three ways: (1) by making too much of its acids into hard soaps, which becomes brittle on drying; (2) by drying the oil too much by the use of driers remaining in it, or in other words, hastening the decay which takes place by the slow action of the air and sunlight; (3) by depriving it of its not-drying oil acids at the wrong time. If the dried point is heated it loses from 3 to 5 per cent. in weight. It is much better that this loss should take place before the varnish is thoroughly dry; and heat is to be recommended for varnish and paint, both because it dries all coats while all are elastic, and because the loss of substance takes place while the oil is still elastic and soft enough to adjust itself to loss.

But very much the most active cause of the cracking of paint and varnish is too much contracting force unequally distributed. In other words, the cause of the cracking of paint and varnish is unequal amounts of oil in adjoining coats, and unequal rates of drying.

A rubbing varnish over a finishing varnish is a good illustration of cracking due to unequal drying. An American varnish over an English varnish is a good illustration of unequal amounts of oil in adjoining coats. Too great thickness of a drying layer is still another illustration, as when a varnisher lays his brush upon a piano on which he is at work. Brush this spot over as he will, it will quite certainly crack.

Dr. Liebreich, of London, has studied the cracking of oil paintings, and finds that the cracking tends to follow lines running through those portions of the canvas on which the paint is thickest. It is important, therefore, that we get a proper conception of the causes at work, and a proper method of investigating these.

It is a more or less common practice to scratch away the paint or varnish from a cracked surface in order to discover the coat which has done the evil. I may be mistaken, but this appears to be a very misleading method. Except from over-drying on the surface of old varnish and from the action of cold, at least two coats are always engaged in any cracking, and these may crack coats above them, and under them, and once begun the cracking may extend to the wood.

## FIFTY-TON TESTING MACHINE FOR RAILWAY MATERIALS.

(Constructed in Accordance with the Requirements of the Deutscher Eisenbahn-Verein.)

(For description see page 328.)

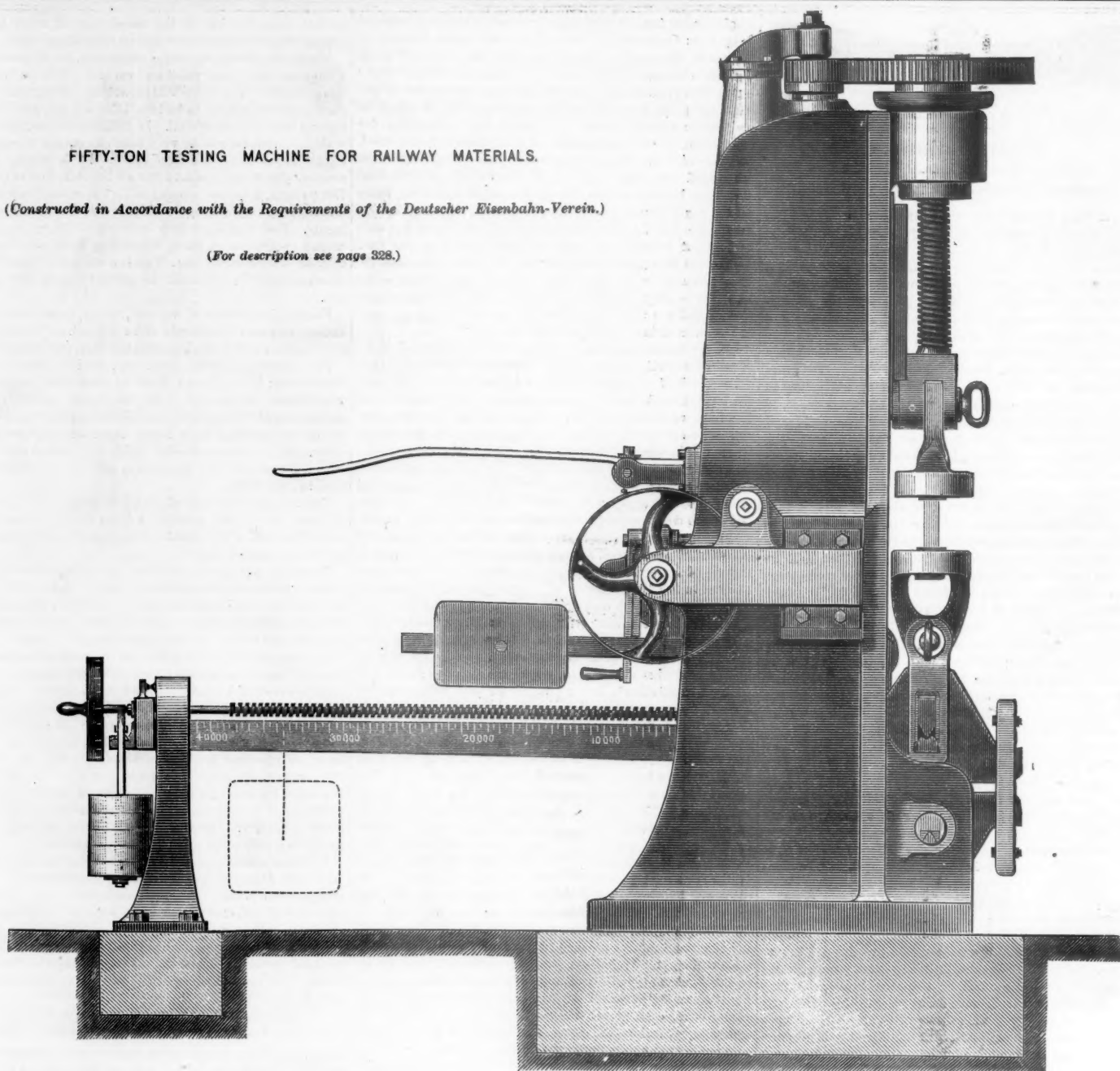


Fig. 1.

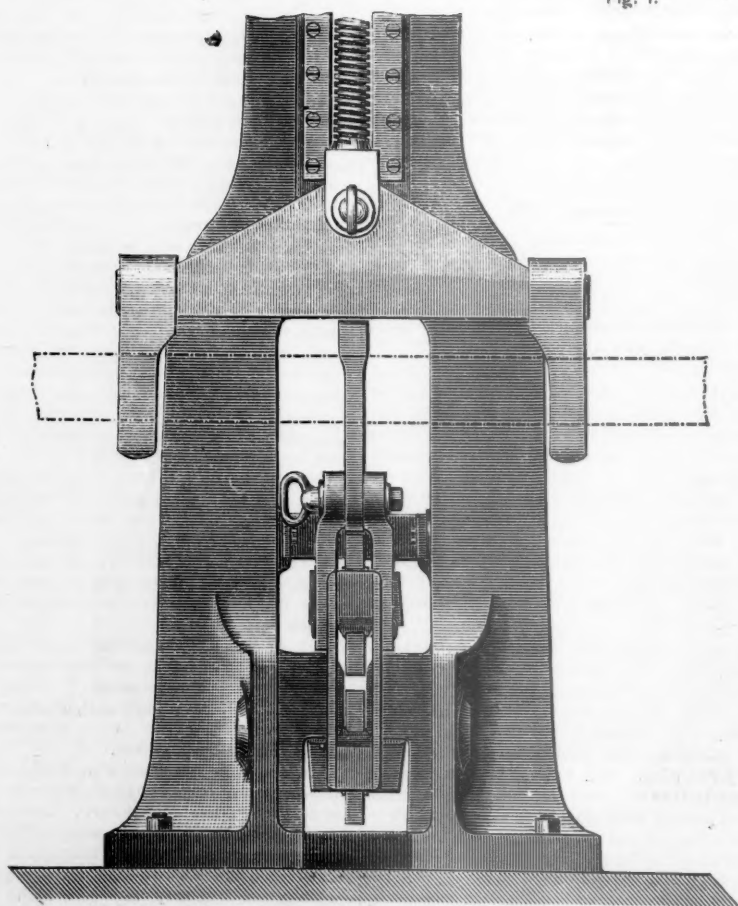


Fig. 3.

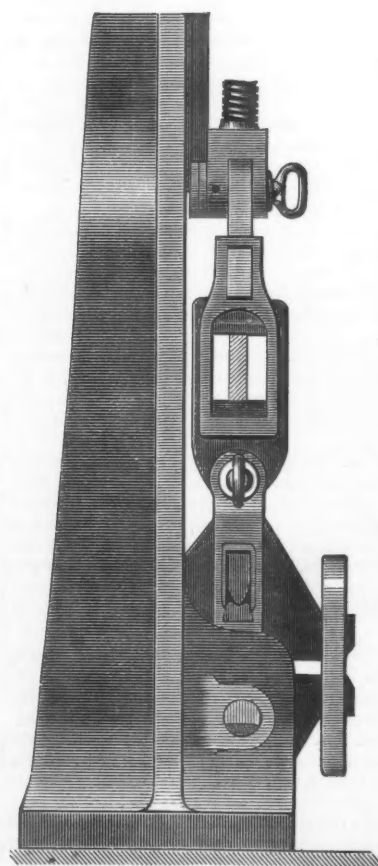


Fig. 4.



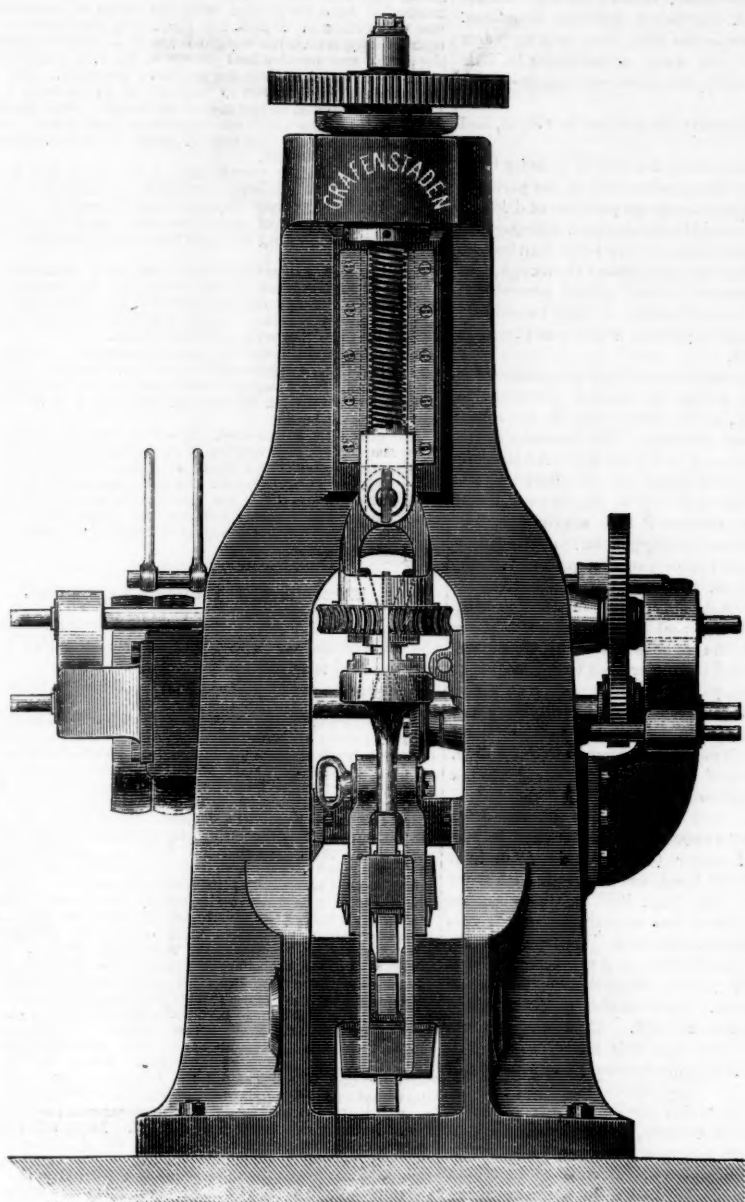


Fig. 2

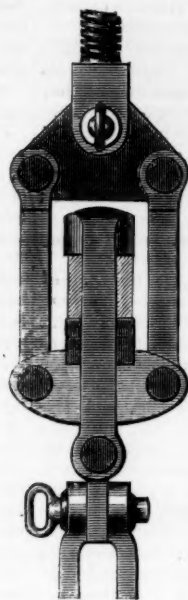


Fig. 5.

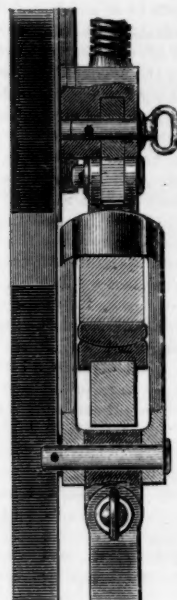


Fig. 6.



Fig. 7.



Fig. 8.



Fig. 9.

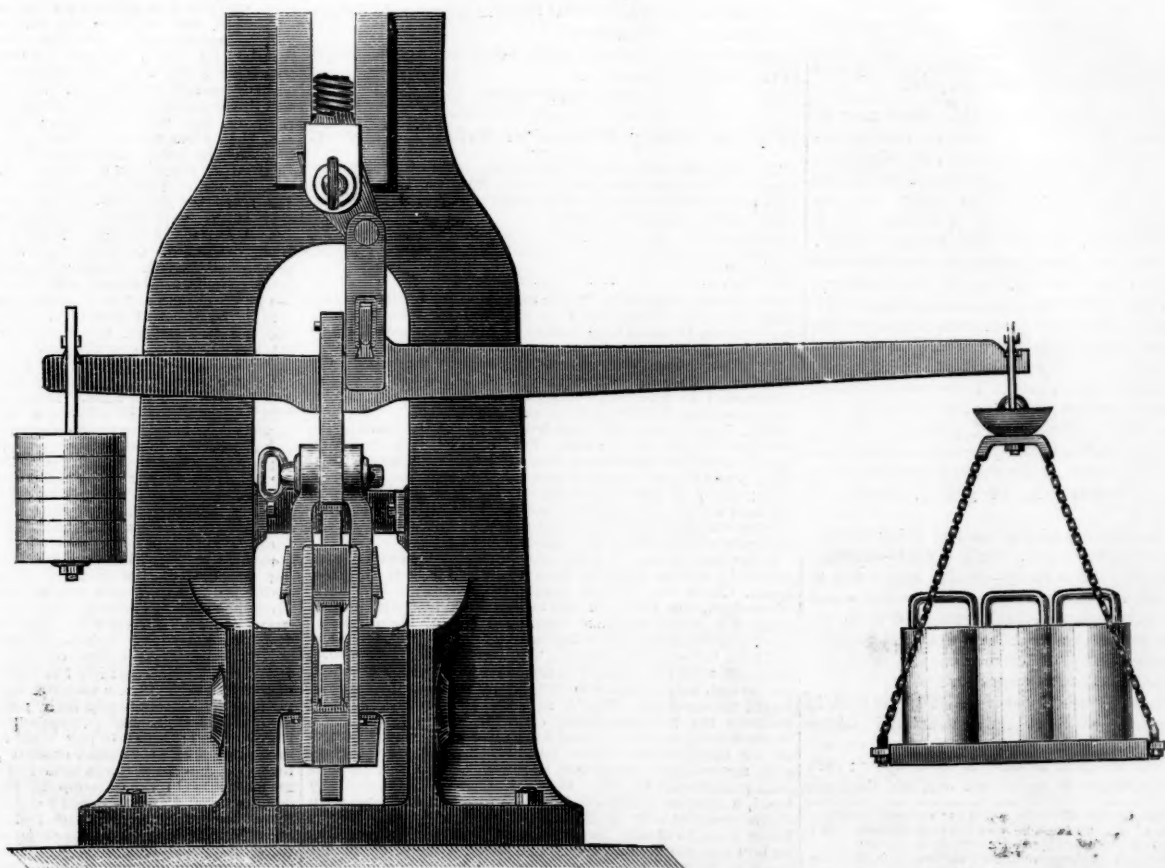


Fig. 10.

FIFTY-TON TESTING MACHINE FOR RAILWAY MATERIALS.

(Constructed in Accordance with the Requirements of the Deutscher Eisenbahn-Verein.)

(For description see page 328.)

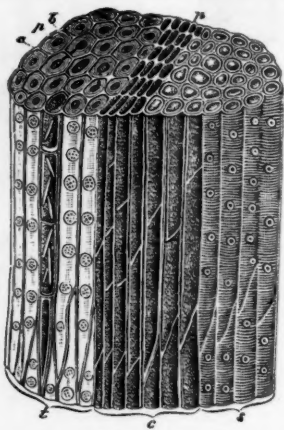
Cracks of the same kind may and do extend to different depths, and while it may be possible by examining the direction and depth of a number of these to reach an opinion, process is quite different from the ordinary method.

The causes of cracking are want of elasticity, the force and especially the inequality of the pull. Adjoining coats should be fairly dry,\* or else dry in equal times. This, however, they cannot do absolutely because one is more exposed to the air than the others. But by the action of heat on the paint or varnish such a condition can be approximated. Under heat the outer coat is rendered elastic; the inner coats, apparently, take up oxygen from it; and the glycerine ether, and the two or three per cent. of non-drying acids fly away. The best conditions of drying are thin coats subjected to diffused light and heat.

It is an experiment worth trial, namely, a heated, well glazed room or house, in which cars, carriages, furniture and such nice work could be subjected to much more light, and a more uniform heat than is to be found in the ordinary shop.† The glass of such a house, or of the windows of a shop, should be free of all imperfections or "bull's eyes." These concentrate heat and light like a lens, and produce most "unaccountable" blisters on the paint and varnish. It is possible that under too great heat the wood might contract and crack varnish, but this is not probable. Near me, as I write, lies a piece of white-wood, on which, as green wood, four or five coats of varnish were quickly placed, and the surface then subjected to a strong heat for days. No cracks appear. In this case but one side of the wood was covered, but all panels should be treated on all sides, because there is much more danger of the wood causing cracks from expansion by absorption of moisture than from drying out by heat or otherwise.

#### PEELING OFF OF PAINT.

The danger from green and damp wood to paint is that it causes it to peel off. Dampness and sap in the wood are by far the most active causes of peeling, and perhaps of the blistering of paint. There are other causes of peeling, but these are much less active. One of these is the failure to lay the foundation of the paint inside the cells of the wood.



A bundle of wood cells and fibres from a pine shoot. Wood is largely made up of these marked *a* and *b*. It will be at once seen that if the oil has not entered the cells, water coming from above or below can easily get under it, as it lies on the surface of the cells. This is the usual way in which paint peels.

When paint is fresh, it holds to the wood by what may be called an adhesion of affinity—i. e., it sticks to the wood because it is sticky. When it dries out, however, the oil changes its character; it is a hard, solid substance, which has no special liking for wood; it then holds only by physical adhesion, i. e., because particles of it are jammed into holes, hollows and uneven places. It is because wood has such uneven places—such cells and pores—and iron has them not, that dry paint will not hold as well on iron. On wood, paint which is built on priming that has penetrated to the wood cells has about 300 to 500 points on each inch of surface to which (in which) it is fastened. On iron it has very few points to the inch, and the value of red lead on iron seems to be its power of holding itself together over the iron—i. e., its elasticity and firmness as a paint-layer. The secret of painting on iron is to use an oil which shall remain sticky as long as possible, or else a paint (red lead) which shall have the power of holding itself together. A second cause of peeling, therefore, is improper priming.

A third cause of peeling is a heavy coat of paint or varnish which has an uneven pull. Such a coat—or rather coats, for it comes only after many—cracks, and tends to curl on itself, and, with the assistance of the water which comes to the wood through the cracks, tears itself from the wood. Cracking may, therefore, be said to end in peeling, for this is the general course of destruction.

#### WHY DO COATS CONTRACT?

It has been shown that oil gains about 10 per cent. in weight in drying; why should it then contract and so cause cracking?

Drying mud cracks open because it loses water; each little particle draws nearer to each other one, and the force

of all opens a cleft at some point, because different masses of the mud particles pull together in different directions. Meanwhile little tubes form in the mud, these suck up water from the wet mud below, the water accumulates in little spaces, and causes, apparently, the pores—air spaces—in the dried mud.

Dried oil and varnish, however, do not lose in weight, and have no pores.

Fresh oil is lighter than water; dried oil is heavier than water. One is a fluid, the other a solid—that is, the particles of oil are not so close to one another as the particles of dried oil or varnish. Oil in drying contracts, because each little particle (atom) pulls each other with particle more force than before. The oil has drawn itself together as it linked the oxygen gas to it. Oil contracts because it has gained something; varnish contracts even more because it loses something, namely, its large volume of turpentine, which was placed in the varnish to keep it fluid.

Both oil and varnish continue to contract (the particles to move toward one another) so long as oxygen continues to unite with the oil. This, as we have seen, is for many months—usually for at least 150 days. The elasticity of the oil depends upon the fact that it is not all dry. All the undried linolein (linseed oil acid) gives the oil elasticity, but whatever remains when another coat is placed over it will be dangerous to that coat, because it will continue its drying and contraction. Again, the oxygen, as it continues to unite with the not-drying oil acids (one fifth part of the oil), changes them into flying oil acids, which are either gradually or suddenly (by some hot day) flying away, and leaving less oil, and that of a firmer and harder nature. These changes continuing upon the surface gradually make the outer coat so much less than the under coat that it begins to part, and gives those fine, pale lines which may be seen on the surface of old varnishes with a good magnifying glass, running always across the grain, because all motion, as we have shown (contraction is motion) is easier in this direction, and because the shrinking of wood under the varnish in the other direction makes that pull much less.

For these reasons the best preservative of well-dried varnish is oil—a little oil rubbed thoroughly over its surface. This will protect from air (oxygen) and from heat and cold. Only experienced hands are fit to do such work on fine jobs—it should be done from time to time—because too much oil gums and injures the appearance of the varnish, making it a complete dust-trap. On rough work, however, it will serve equally well as a protection, and is the only thing which will prevent varnish over hot engine boilers from going to pieces. Such varnish quickly goes to pieces from the contraction of cold. Cold air does not affect it so much as cold rain, nor this nearly so much as snow, which cracks it like so much brittle glass if it be not oiled.

I have not spoken of the action of cold in destroying and cracking paint and varnish, because, although certain, it is not a force which has been measured, and cannot be prevented except by using pure linseed oil. In very cold sections, pure linseed oil alone should be used; but the experience with fish oil on roofs, and the facts of the drying of oil indicate that, for iron and rough woodwork, a little half-drying oil (never more than  $\frac{1}{2}$ ) may be an advantage to linseed oil. It should not be forgotten that this will increase the danger of cracking in the next coat.

We present the following bits of testimony in confirmation of the views of this article.

(TO BE CONTINUED.)

#### Fifty-Ton Testing Machine for Railroad Materials.

On undertaking a series of exhaustive tests on various examples of iron and steel, the German Railroad Union found that pieces of the same class of metal showed the following great variations of resistance:

Bessemer steel.....	28 to 50 tons per sq. in.
Crucible cast steel.....	30½ " 57½ " "
Boiler plate.....	26 " 26½ " "
Bar iron.....	20½ " 26 " "

They therefore decided upon adopting in future certain bases for all specifications of iron and steel work, which apply to the German state railways, and to the greater portion of other lines in Germany as well as in Austria.

To carry out the various tests imposed by the union, the Alsatian Machine Company have brought out the machines (illustrated in the engravings) for testing railway materials by tensile, flexion and compressive strains.

Figs. 1 and 2 show side and front views of the machine as arranged for the tension test. Figs. 3 and 4 show front and side views of the machine as arranged for the bending test. Figs. 5 and 6 give details of the arrangement for compression; figs. 7, 8, and 9 show the manner in which bolts, etc., are held for the tension test; and fig. 10 illustrates the appliance for checking the correctness, and permitting of the accurate adjustment of the machine.

Referring to figs. 1 and 2, the bar or plate sample to be tested by tensile strain is inserted in two sockets, or cross-heads. Each end is held firmly by means of two pairs of wedges, one fitting in the other, the inner pair having their flat inside surfaces roughened for giving a tighter grip, and the outer pair being turned conical on the outside to fit the holes in the sockets. The upper socket is connected by a pin with the head of a tension screw, which is raised on its nut, being caused to revolve by the spur gear at the top of the machine. This is actuated by the vertical shaft between the two standards, carrying at its lower end a worm wheel, which is caused to revolve by a worm, receiving its motion from which handles, through gearing variable according to the power required, or by a belt and the pulley shown in fig. 2. When the power is applied by hand, a tensile strain of 12 to 15 tons can be given with single gearing, and of 25 to 30 tons with double. In the latter case, to obtain the maximum of 50 tons strain, the pulleys are mounted on the second shaft. The pitch of the screw is 12 millimetres; and when the power is applied by hand, the lineal speed of the screw is  $4\frac{1}{2}$  millimetres a minute for strains of 12 to 15 tons, and  $1\frac{1}{2}$  millimetres a minute for strains of 25 to 30 tons. When the power is applied by belt from an engine, the lineal speed of the screw is 10 mm. for a strain of 50 tons; and when, for small samples, the power is transmitted direct to the screw, its

lineal speed is 105 mm. per minute. The lower socket is connected by a knife-edge with the beam of a balance, in the proportion of 1:200, for indicating the strains. This beam, along which the weight is made to slide by means of the screw and hand-wheel shown in fig. 1, is graduated up to 40 tons, which suffices for ordinary purposes. But when the machine is required to indicate up to 50 tons, a fixed weight is attached to the end of the beam. One revolution of the slider hand-wheel corresponds to half a ton; and its circumference is divided into 20 parts, so as to register increments of half a cwt.

Bolts and similar parts (figs. 7 to 9) are held by their heads resting on washers or rings of circular cross section, fitting into boxes with hemispherical recesses for receiving them. The covers of the boxes are made to open with hinges, for facilitating the insertion and withdrawal of the bolts.

Bending tests are carried out by fitting a cross-head with two links to the head of the screw, for drawing upwards the ends of the bar (shown dotted in figs. 3 and 4), at two points, 3 feet  $3\frac{1}{2}$  inches apart, while the middle is held by a link in connection with the scale-beam.

In compression tests, the piece—generally a cube, with side of 6 inches, as shown dotted in figs. 5 and 6—is held by a set of links and a pair of cross-heads, all of cast steel, connected at the top with the tension screw, and at the bottom with the scale beam.

The checking apparatus, shown in fig. 10, consists of a lever suspended, as a matter of convenience, from the head of the screw, with the short end in connection with the main link of the scale beam, and carrying at the other end a weight of 10 tons. If the machine is in adjustment, the check lever will exactly balance the 10-ton slider; but, if not, the knives must be adjusted until the equilibrium be established.—Iron.

#### Massachusetts Railroad Legislation.

The Boston Advertiser gives the following summary of the work of this year's session of the Massachusetts Legislature so far as it affects the railroads:

Most protracted of all the efforts to secure legislation was that to get a charter for the Meigs elevated railroad. Petitions supported by names of recognized business weight and remonstrances of hundreds of leading citizens and heavy property holders were presented; committee hearings were numerous. Finally, with two dissenters, the committee reported leave to withdraw. Captain Meigs and his friends secured a room in the State House and exhibited the single track invention to all who desired. Then came the jumble of parliamentary proceedings which marked the succeeding steps in the case. A substitute bill was presented for the majority report. So imperfect was it that it was withdrawn and a second substitute presented before it was taken up at all. This in turn was unsatisfactory and a third substitute was offered before the debate began. For the third substitute two other substitutes were moved by members and several material amendments were also offered. Captain Meigs was given the floor to explain his invention to the House, and the second substitute after material amendment was passed by a large majority, the other substitutes being rejected. In the Senate the House bill was ruled out on a point of order. For some reason, perhaps a desire to be as fair as possible to the new invention, the President ruled that the committee report, which the House rejected when it substituted the bill, was sufficiently before the Senate for the purpose of moving a substitute bill. Such a substitute, drawn to avoid the obnoxious point of order, was admitted, discussed and rejected. Days after the time for reconsideration had expired, the House, which felt that the Senate had not given it due courtesy in refusing to entertain a bill it had sent up, requested formally the return of that bill. In the Senate a committee was appointed to consider the request, and though the right of the House to the paper was not conceded, yet the bill was returned from courtesy. In the House, where it had then no standing whatever, it was laid on the table immediately after its return, and in a few minutes put in the calendar. Another substitute, not liable to the original point of order in the Senate, was adopted. All rules were suspended; it was put through all stages at once without debate or material opposition and sent up to the Senate. There it was debated and rejected by a large vote. Reconsideration was moved, and the accommodating Senate by a good majority revived it again, but only to debate it further and reject it again, and that time finally. These proceedings covered several months. In some shape elevated roads were before the Legislature nearly the entire session.

A new and highly important departure in the policy of the state toward railroads has been made this year. The sale of the vast blocks of stock owned by the state in the Boston & Albany and New York & New England roads has been authorized. On the former stock the contest over the principle occurred. Three days were devoted to the bill in the House, but the debate was continued more because of the great moment of the subject than from lack of conviction in the minds of members. By a very large majority the bill was passed, and it was strongly supported by the Senate. It authorizes the sale of the state stock at \$160 per share, and permits the road to issue 5 per cent. 20-year bonds for the purpose of raising the money, the state stock to be assigned to the road. There was less favor shown at first to the bill for the sale of the New York & New England stock, but it was not debated nearly as much, the issue being mainly whether the sale should be for cash or for second-mortgage bonds. Finally the bill as passed authorized the sale at the rate of \$50 per share, and the road was given power to issue 5 per cent. 20-year second mortgage bonds. Action upon other railroad matters of the most importance may be summarized briefly. The Legislature refused to entertain a proposition for the redemption of the Troy & Greenfield Railroad by the representatives of that old corporation, the position of General Haupt especially being put in a light unfavorable to him, and it being stated that the commonwealth has a clear title to the Tunnel property. An appropriation of \$300,000 for double-tracking the Tunnel line was cut down to \$250,000 and passed. In consequence of the frightful calamity at Spuyten Duyvil by which Senator Wagner and so many others lost their lives, a measure was enacted to compel railroad companies to equip their passenger cars with ample means for extricating passengers in case of accidents. A resolve was reported to pay Walter Shanly \$45,495.62 for losses by his Hoosac tunnel contract, and it was stubbornly fought as it went through both House and Senate by small majorities. On the question of being enacted, the House defeated it and an attempted reconsideration failed. To the towns of Otis, Sandisfield and Tolland the Legislature voted some thousands of dollars each as reimbursement for losses which they had suffered in consequence of decisions of the state's attorney-general upon giving the aid of the state to the Lee & New Haven Railroad. A vigorous contest occurred on the several stages of the bill to establish the railroad commissioners as a tribunal to decide upon the expediency of proposed new railroads—the particular issue which lent spice to the matter being the threat of the New York & Boston Inland Railroad to damage some fine estates in

\* They cannot be dry in the true sense for several months. † The direct rays of the sun must be avoided to a degree; and any great change of temperature immediately after drying. Nevertheless, it was the practice of early artists, and remains that of some careful English artists, to dry their paintings in the sun's rays.

‡ Sap in the wood, also resins and turpentine, injure the oil and cause it to contract and crack (across the grain of the wood). § The ends of layers of a heavy coat, peeling in this way, were examined under the microscope. The middle layers of the coat were in waves, owing, perhaps, to the heavy pulling of an old coat of English varnish.



## RAILROAD EARNINGS IN APRIL.

NAME OF ROAD.	MILEAGE.					EARNINGS.					EARNINGS PER MILE.				
	1882.	1881.	Inc.	Dec.	P. c.	1882.	1881.	Increase.	Decrease.	P. c.	1882.	1881.	Inc.	Dec.	P. c.
Ala. Gt. Southern	290	290				\$ 57,005	\$ 58,259		\$ 1,254	2.1	\$ 197	\$ 201	\$ 4		2.1
Atchison, Top. & S. F.	1,790	1,870	120		7.2	1,100,000	948,000	152,000		16.0	615	568	47		8.2
Buffalo, Pitts. & West.	205	205				59,331	59,515	184		17.3	290	240	44		17.3
Burr, Cedar Rap. & No.	62	564	56		9.0	178,304	184,080	5,776		3.4	288	327	39		11.8
Cairo & St. Louis	146	146				82,630	85,154	2,524		23.8	184	241	57		23.8
Central Iowa	244	190	54		28.4	2,054,000	1,87,370	179,630		9.6	331	401	70		17.4
Central Pacific	2,916	2,590	326		12.6	8,044,488	79,180	28,519		11.7	574	523	51		9.7
Ches. & Ohio	442	435	7		1.7	25,861	27,342	1,481		0.6	663	665	2		0.3
Chicago & Alton	847	840	7		0.8	561,787	558,190	3,597		5.8	579	609	30		4.9
Chi. & Eastern Ill.	232	221	12		5.5	126,284	134,070	7,786		53.0	579	378	201		53.0
Chi. & Gd. Trk.	315	335				194,122	126,760	67,362		20.5	356	311	25		7.6
Chi. Mil. & St. Paul	4,260	3,860	400		12.1	1,518,000	1,259,946	258,054		10.8	498	526	28		5.3
Chi. & Northwestern	3,280	2,800	480		17.1	1,634,818	1,474,611	160,207		36.5	540	275	65		23.6
Chi. St. P. M. & O.	1,050	950	100		10.5	3,654,648	281,311	95,335		13.2	681	612	69		11.2
Cin. Ind. St. L. & Chi.	336	334				204,239	183,710	20,529		3.6	536	275	65		23.6
Cin. N. O. & T. Pac.	144	144				18,112	173,929	6,183		12.9	277	248	31		12.9
Cleve. Akron & Col.	30	320				39,874	35,353	4,521		22.3	725	593	132		22.3
Col. Hoek'g V. & Tol.	1,062	690	372		53.0	231,937	189,667	42,270		29.3	527	628	101		16.1
Denver & R. G.	84	84				559,917	433,111	126,806		15.0	360	493	63		15.0
Des Moines & Ft. Dodge	228	226				30,272	35,494	5,222		15.9	371	481	78		15.9
D. L. N. & No.	345	318	27		8.5	120,056	111,423	8,633		11.6	545	530	15		2.8
Flint & Pere Mar.	230	229				188,129	168,520	19,609		3.2	142	147	5		3.2
Gr. Bay, Win. & St. P.	292	292				31,391	32,312	921		11,860	219	510	147		68.1
Hannibal & St. Jo.	104	88	16		18.2	148,913	190,812	41,899		90.0	232	144	88		61.1
Houston, E. & W. Tex.	918	918				24,111	12,701	11,410		6.5	584	549	35		6.5
Ill. Cen. Ill. lines	402	402				536,408	503,734	32,674		13.0	344	385	51		13.0
Iowa lines	555	555				138,195	158,759	20,564		1.1	371	367	4		1.1
Ind. Bloom. & West.	329	305	15		4.9	205,934	203,677	2,257		6.7	473	532	59		10.7
K. C. Ft. S. & G.	384	386				151,463	162,185	10,722		5.3	290	275	15		5.3
Lake Erie & Western	335	330	15		4.7	112,071	105,398	6,673		10.2	471	447	24		5.4
Long Island	2,025	1,840	185		10.1	137,736	142,965	5,229		11.6	469	467	2		0.4
Louisville & Nash.	90	90				950,007	850,862	99,145		93.5	367	190	177		93.5
Mar. Hought. & Ont.	280	250	30		12.0	33,000	17,104	15,896		54.1	241	175	66		37.7
Min. L. S. & West.	360	225	135		60.0	67,523	43,776	23,747		24.7	200	334	74		24.7
Minn. & St. Louis	387	300	87		29.0	59,371	87,134	27,763		31.9	154	290	136		46.9
Mo. Pacific lines:															
Central Branch	775	623	152		24.4	229,145	182,482	46,663		25.0	296	204	2		0.7
Int. & Gt. Northern	1,230	880	350		39.8	441,185	393,445	50,750		12.9	361	447	86		19.2
Mo. Kan. & Tex.	890	700	190		25.7	54,142	57,561	3,419		0.7	615	768	153		25.0
Mo. Pacific	750	685	65		9.5	581,977	548,300	33,677		6.1	776	360	54		14.6
St. L. I. M. & So.	1,140	800	340		42.5	359,543	295,066	64,477		21.8	315	360	54		14.6
Texas & Pacific	58	506	22		4.3	145,272	163,550	18,278		11.1	275	323	48		14.8
Mobile & Ohio	467	467				154,151	181,526	27,375		19,371	160	390	63		16.0
Nash. Chatta. & St. L.	428	428				171,792	174,438	2,646		1.5	401	407	6		1.5
Norfolk & Western	326	326				435,129	487,273	52,144		10.7	1,335	1,495	160		10.7
Northern Central	972	722	250		34.7	438,000	216,210	221,790		102.7	451	289	152		50.7
Northern Pacific	231	231				35,455	46,991	11,536		138	368	153	213		138.0
Ohio Central	128	128				59,040	57,478	1,562		17.7	227	193	34		17.7
Ohio Southern	1,925	1,890	35		1.9	3,855,850	3,790,372	65,478		2.0	2,003	1,990	13		0.6
Pennsylvania	254	248	6		2.4	67,085	51,908	15,087		29.0	264	210	54		25.7
Peo. Dec. & Evansv.	994	994				1,709,712	1,484,864	224,848		15.1	1,720	1,494	226		15.1
Phila. & Reading	108	108				25,419	17,024	8,395		49.4	235	158	77		49.4
Roch. & Pitts.	195	195				91,507	133,337	41,830		31.4	469	684	215		31.4
St. L. A. & T. H. M. L. E.	121	121				65,943	64,110	1,833		2.9	545	530	15		2.9
Belleville Line	680	592	88		11.5	242,806	265,368	22,562		8.5	369	448	80		17.9
St. Louis & San Fran.	910	740	170		23.0	570,800	425,685	145,115		34.2	627	575	52		9.0
St. P. Minn. & Man.	128	100	28		28.0	40,867	26,407	14,460		55.5	319	294	25		8.5
Scioto Valley	243	243				78,380	83,562	5,182		6.2	323	344	21		6.2
South Carolina	395	285	110		38.6	76,626	47,501	29,125		61.3	194	167	27		16.2
Tol. Cin. & St. L.	3,740	3,450	290		8.4	2,462,004	1,766,891	695,113		39.3	658	512	146		28.5
Union Pacific	142	142				30,716	35,088	4,372		12.5	216	247	31		12.5
Vicks. & Meridian	3,350	2,480	870		35.1	1,378,194	1,023,482	354,712		34.7	411	413	2		0.4
Wab. St. L. & Pacific	520	520				158,538	123,765	34,773		28.1	303	238	65		28.1
Wisconsin Central															
Total 63 roads.	47,688	42,248	5,440		12.9	29,942,592	23,738,384	6,204,208		13.5	565	562	3		0.5
Total inc. or dec.			5,440												

## RAILROAD EARNINGS, FOUR MONTHS ENDING APRIL 30.

NAME OF ROAD.	MILEAGE.					EARNINGS.					EARNINGS PER MILE.				
	1882.	1881.	Inc.	Dec.	P. c.	1882.	1881.	Increase.	Dec.	P. c.	1882.	1881.	Inc.	Dec.	P. c.
						\$	\$		\$		\$	\$		\$	
Ala. Gt. Southern	290	290				253,197	242,813	10,384		4.3	873	837	36		
Atchison, Top. & S. F.	1,790	1,605	185		11.6	4,347,000	3,151,000	1,196,000		37.9	2,428	1,963	465		23.4
Buffalo, Pitts. & West.	205	205				241,187	193,091	47,996		25.1	1,178	942	234		25.1
Burr, Cedar Rap. & No.	62	564	56		9.9	880,804	625,499	255,374		40.9	1,421	1,109	312		28.4
Cairo & St. Louis	146	146				115,354	141,478		26,124	18.6	790	969		179	18.6
Central Iowa	244	190	54		28.4	361,125	226,471	134,654		59.5	1,480	1,192	288		24.1
Central Pacific	2,988	2,590	398		15.7	7,994,144	6,639,132	990,012		14.4	2,631	2,503	68		2.3
Ches. & Ohio	442	435	7		1.7	857,103	802,752	54,351		6.8	1,939	1,845	94		5.0
Chi. & Alton	847	840	7		0.8	2,246,936	2,061,543	185,393		9.0	2,653	2,454	199		8.1
Chi. & Eastern Ill.	232	220	12		5.5	498,282	408,282	40,000		8.1	2,322	2,265	57		2.5
Chi. Mil. & St. Paul	4,181	3,794	387		10.2	5,891,000	3,850,490	2,040,510		53.0	1,419	1,015	304		38.8
Chi. & Northwestern	3,280	2,790	490		17.5	6,423,626	4,572,778	1,850,848		32.3	1,958	1,741	217		12.4
Chi. St. P. Minn. & O.	1,027	950	77		8.1	1,430,708	929,240	501,468		54.0	1,391	978	415		42.4
Cin. Ind. St. L. & Chi.	300	300				81,813	728,684	89,129		12.1	2,726	2,419	307		12.1
Cin. N. O. & Tex. Pac.	336	336				759,400	627,402	131,998		21.0	2,290	1,897	393		21.0
Cleve., Akron & Col.	144	144				49,035	122,841	16,194		12.2	1,055	923	132		12.2
Denver & Rio Grande	1,062	586	476		81.2	1,999,873	1,455,760	543,113		37.3	1,883	2,486		603	24.3
Des Moines & Ft. Dodge	84	84				130,544	103,374	27,170		25.7	1,554	1,237	317		25.7
D. L. N. & No.	228	228				47,094	389,103	116,901		30.7	2,199	1,682	517		30.7
Flint & Pere Marq.	315	318	27		8.5	713,275	583,370	129,905		22.3	2,067	1,836	231		12.6
Gal. Har. & San Auto.	340	220	120		54.5	393,445	401,637		6,192	1.5	1,163	1,826		663	36.3
Grand Trunk	1,460	1,405	55		3.7	4,111,593	3,473,119	61,556		1.7	2,336	2,467		131	5.5
Great Western	526	323	203		38.4	1,364,168	1,727,922	143,756		8.3	3,012	3,235		273	8.3
Gr. Bay, Winona & St. P.	230	220	10		4.3	118,949	10,196	10,753		16.4	541	463	76		16.4
Houston & S. Jo.	202	202				35,024	35,024		48,440	75.7	2,041	2,217		166	75.7
Houston, E. W. Tex.	104	86	18		20.5	75,922	40,489			14.7	1,728	2,070	300		55.5
Ill. Cent., Ill. lines.	918	918				2,189,621	1,908,829	280,792		28.2	1,488	1,137	351		28.2
Iowa lines.	402	402				597,913	467,233	130,680		49.9	1,412	1,343	67		49.9
Ind., Bloom. & West.	555	555				783,748	746,738	37,010		15.1	1,742	1,588	154		9.9
Kan. City, Ft. Scott & G.	320	305	15		4.9	557,559	484,413	73,143		4.4	1,119	1,023	96		4.4
Lake Erie & West.	386	386				43,127	394,998	37,139		15.1	1,742	1,588	154		9.9
Long Island	335	320	15		4.9	535,569	477,504	58,065		12.5	1,591	1,492	97		7.5
Louisville & Nashv.	2,025	1,840	185		10.1	3,949,949	3,420,903	528,946		15.1	1,659	1,489	169		15.1
Mar. Hought. & Ont.	90	90				103,134	61,546	41,588		12.5	1,108	884	224		70.0
Mil. Lake Sh. & West.	280	250	30		12.0	274,037	147,180	126,857		89.3	979	589	390		66.6
Minn. & St. L.	360	225	135		60.0	438,684	236,081	202,603		85.8	1,216	1,049	169		126.1
Mo. Pacific lines:															
Central Branch	375	370	75		25.0	268,520	279,927		11,398	4.1	716	933		217	26.1
Int. & Gt. No.	775	623	152		24.4	868,934	799,518	69,416		8.7	1,121	1,283		162	12.2
Mo. Kan. & Tex.	1,200	880	320		26.4	1,711,080	1,494,862	216,218		14.5	1,426	1,049	376		27.3
Mo. Pacific	832	700	132		18.9	2,118,980	1,835,647	283,333		15.4	2,547	2,622		75	9.9
St. L. Iron Mt. & So.	1,243	685	558		81.2	2,184,482	2,384,048		199,566	8.8	1,111	1,446		335	23.3
Texas & Pacific	1,733	800	933		41.6	4,083,880	1,749,851	2,334,029		25.1	1,170	1,651		481	29.9
Mobile & Ohio	528	506	22		4.3	617,510	835,579		101,932	16.9	1,354	1,426		274	16.9
Nash. Chatta. & St. L.	467	467				632,115	709,245		21,096	3.4	1,533	1,609		56	3.4
Norfolk & Western	428	428				684,794	6,838		128,130	13.1	1,309	796	513		73.9
Northern Central	326	326				1,686,242	1,708,993		22,751	1.3	5,173	5,242		69	1.3
Northern Pacific	972	722	250		34.7	1,310,800	574,505	736,295		131.7	1,309	796	513		73.9
Ohio Central	231	231				200,466	167,028	123,438		73.9	1,257	723	534		71.3
Pennsylvania	1,925	1,890	35		1.9	14,448,215	13,880,505	568,710		4.0	7,505	7,444	61		2.0
Phila. Dec. & Evans	1,215	205	40		23.9	223,514	170,951	82,763		48.4	998	833	165		19.1
Peria. & Reading	994	994				6,113,597	5,740,991	372,606		6.5	6,150	5,786	364		6.5
Rochester & Pittsb'g.	108	108				87,704	68,132	19,572		25.8	812	631	181		28.8
St. L., Alt. & T. H.															
Main Line	195	195				395,377	477,312		76,935	16.3	2,028	2,422		394	16.3
Belleville Line	121	121				219,424	298,009		8,585	3.2	2,144	2,215		71	3.2
St. L. & San Fran'isco.	680	592	68		11.5	1,019,234	918,018	101,186		11.0	1,544	1,551		7	0.0
St. P. Minn. & Manitow.	919	740	179		23.0	1,915,713	1,160,317	755,396		63.2	2,105	1,698	597		24.4
Scioto Valley	128	100	28		28.0	148,910	50,936		50,936	50.6	1,164	989	176		21.1
South Carolina	243	243				443,499	455,802		12,303	2.8	1,830	1,778	52		2.8
Tol. Cin. & St. L.	335	285	110		38.6	292,478	181,665	110,813		60.9	740	637	103		51.6
Union Pacific	3,710	3,381	329		9.8	8,409,787	6,220,354	2,189,433		35.2	2,267	1,839	428		23.6
Wabash, Nt. L. & P.	3,350	2,480	870		35.1	5,058,702	3,775,613	1,283,089		34.0	2,107	1,522		12	0.0
Wisconsin Central	520	520				617,653	402,024	215,629		53.6	1,188	773	415		53.6
Total 62 roads	48,906	43,178	5,628			105,415,578	89,475,712	16,939,866	987,649		2,160	2,072	88		4.1
Total inc. or dec.			5,628		13.0			16,939,866		17.8			88		4.1





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#### EDITORIAL ANNOUNCEMENTS.

**Passes.**—All persons connected with this paper are forbidden to ask for passes under any circumstances, and we will be thankful to have any act of the kind reported to this office.

**Addresses.**—Business letters should be addressed and drafts made payable to THE RAILROAD GAZETTE. Communications for the attention of the Editors should be addressed EDITOR RAILROAD GAZETTE.

**Contributions.**—Subscribers and others will materially assist us in making our news accurate and complete if they will send us early information of events which take place under their observation, such as changes in railroad officers, organizations and changes of companies, the letting, progress and completion of contracts for new works or important improvements of old ones, experiments in the construction of roads and machinery and in their management, particulars as to the business of railroads, and suggestions as to its improvement. Discussions of subjects pertaining to ALL DEPARTMENTS of railroad business by men practically acquainted with them are especially desired. Officers will oblige us by forwarding early copies of notices of meetings, elections, appointments, and especially annual reports, some notice of all of which will be published.

**Advertisements.**—We wish it distinctly understood that we will entertain no proposition to publish anything in this journal for pay, EXCEPT IN THE ADVERTISING COLUMNS. We give in our editorial columns OUR OWN opinions, and those only, and in our news columns present only such matter as we consider interesting and important to our readers. Those who wish to recommend their inventions, machinery, supplies, financial schemes, etc., to our readers can do so fully in our advertising columns, but it is useless to ask us to recommend them editorially, either for money or in consideration of advertising patronage.

#### THE MASTER CAR-BUILDERS' CONVENTION.

On another page a list of the subjects which will be brought up for discussion at this convention, which will begin June 13, and of the committees appointed to report on them, is given in full. It will be seen from the list that if the committees do justice to the subjects submitted to them the meeting must be a very interesting one. The indications now are that it will be by far the most largely attended convention that has ever been held by the Master Car-Builders' Association. The fact, too, that there has been a very material change in the condition of railroad business during the past six months, and that manufacturers and dealers now find it necessary to make more exertion to secure orders than they did a year ago, makes it probable that they will be more fully represented at the convention this year than ever before. To what extent their attendance promotes the prosperity and usefulness of the Association need not be discussed here now. That it does so to a very considerable degree there can be little doubt, and it is equally certain that it might be made to do so to a very much greater extent if it were properly influenced. If those who make, sell, or have invented any new or useful "art, machine, manufacture or composition of matter" were invited to exhibit their products, and if an opportunity were afforded them to explain the nature and merits of the objects exhibited, it would open the doors for the admission of a vast amount of very valuable information. At some future day this idea may possibly be organized into a system, so as to become a recognized feature of the yearly meetings, which will add very much to their attraction and usefulness.

There can be no doubt, though, that the Association and its members have been made to suffer very considerably in reputation by the indiscretions of some of the representatives of dealers and manufacturers who have been sent to the conventions. It has come about in this wise: Long before the time of holding the convention arrives the representatives of different firms or companies write to the hotel selected for the headquarters of the Association, and engage the best rooms at prices which few, if any, master car-builders can afford to pay. To the fact of their engaging the rooms and occupying them, no objection can be made; but in some cases an indiscriminate hospitality has been dispensed in these rooms until they became the source of more or less disgraceful conviviality. This, as has been remarked, has injured the Association in reputation, and has seriously diminished its influence for good, and, if the practice is persisted in, will injure it still more; although it is difficult to see how the Association or its members can control or entirely

prevent the evil, excepting by both maintaining a commendable dignity and sobriety. It is quite, or very nearly, out of the power of the Association to prevent A. B. or X. Y., or any other person, from engaging rooms at the hotel and making such use of them as he chooses, but it is equally impossible for it to avoid being injured in reputation if such rooms are made disgraceful scenes of revelry during its sessions, even though its own members have no part therein.

There is little room, too, to doubt the fact that some firms and companies employ one or more representatives who are required to have a certain amount of bibulous capacity as a requisite qualification for the duties they are expected to perform. Some of this class of employes are apparently sent to the Car-Builders' and other similar conventions, to exercise their special qualification in the interest of those by whom they are engaged. It is remarkable how faithfully some of them perform that kind of service, and equally remarkable, considering its uselessness in accomplishing the purposes for which it is rendered, that otherwise reputable firms can be found to pay for it. If they choose to do the latter, no one has a right to interfere, excepting to decline the overtures which may be made; but the real friends of the Association, and those who have worked hardest for its success and prosperity, have a right to appeal to those who seek the business and patronage of the railroad companies whose officers are members of the Car-Builders' Association, not to try to secure it through the exercise of the kind of service which has been described, and which injures the reputation of the Association, destroys its usefulness, and, in the long run, is sure to injure all who are engaged in it much more than it can benefit them.

The subjects for discussion this year are all of them of interest and some of them of pressing importance. The question of "train brakes for freight cars" has, it is true, been up for consideration a number of successive years, and a variety of plans and systems have been described in each report and discussed afterwards. The need for continuous freight-train brakes is felt more and more every year. Increased speed for certain classes of freight traffic and greater weight of cars and trains all point to the fact that sooner or later continuous brakes must be used. The great increase in the capacity of cars, within the past few years, has lessened the difficulty, or rather the expense, of introducing continuous brakes, as the cost of the necessary apparatus will be very little greater for a twenty-ton car than for one of half that capacity. The question of uniformity in the construction of cars will also have a very great influence in lessening the difficulties and probably the expense of introducing continuous brakes. It will thus be seen that several of these questions are advancing, and must advance, in parallel lines, and are to a very great extent interdependent on each other, and it would not be remarkable if some such puzzling problems as that of car-coupling, freight-train brakes and uniformity in car construction would reach a simultaneous solution.

The question of the "substitution of steel for iron and iron for wood in car construction" is also an old one, which apparently has not made much progress of late, although that there has been a steady advance in this kind of substitution during the past ten years there can be little doubt. It looks, too, as though the use of metal for wood in car construction were also closely allied to that of the increase of car capacity, as it is obvious that it will be much easier to make an iron or steel car economical if the capacity were doubled, and the cost of two cars could be devoted to the construction of one, than it can be if metal must compete with wood in the construction of cars which carry comparatively light loads. A serious difficulty, too, in the way of making any great advance in the use of metal for car construction is that nearly all attempts of this kind have been either by persons with little skill in the design of metal work, or by those with no considerable practical knowledge of car work. Metal has been substituted for wood by persons who have in some cases been grossly ignorant of the principles of construction, and in other cases the details have been characterized by a lack of those resources which a more fertile ingenuity would supply.

The report on "improvements in cars during the current year" ought to a useful and interesting record of what has been done, but it must be admitted that it is one which it would be very difficult to compile with anything approaching to completeness.

The committee which is to report "on the best diameter for cast, chilled and steel-tired car wheels, and the means which should be adopted to maintain uniform diameter of wheels which are nominally of the same size, and whether the tread of wheels should be coned, and to what extent" have an opportunity to clear

away a great deal of confusion, by recommending standard sizes for the chill molds in which car wheels are cast, and to make it plain to many persons whose minds are still in a good deal of confusion about the effect and usefulness of a conical form for the treads of wheels.

The committee on draw-bars has also an important subject to report on. It is one, however, which it is not so easy to decide as many persons seem to think in fact it seems very doubtful whether it would be wise to recommend a standard without first making a very thorough theoretical and experimental investigation of the subject. There seems to be pressing need, though, that the Car-Builders' Association should at the earliest possible time recommend a standard or standards for the buffer-blocks of cars. Many companies now occupy such an attitude in relation to the question that if a standard were recommended they would be quite sure to adopt it, and a number of the state legislatures seem likely to enforce the adoption of some standard very soon, and they would in all probability select the one which has the sanction of the Car-Builders' Association, unless there were some obvious objections to it.

The question, too, of the uniformity of brakes or of those parts which require most frequent renewal is also becoming a very pressing one. According to Mr. Snow, there are now over 300 different kinds of brake-shoes in use in the country, so that it seems as though it was about time to begin to diminish their number.

That there is as much need as ever "to investigate the causes of accidents to trainmen and report what means can be provided to protect train and yardmen from injury," is apparent from the daily report of such accidents. A full discussion of the subject ought to call out a great deal of information which would indicate how train service may be made less dangerous than it now is.

The committee on screw-threads will make a final report, and, thanks to the agitation of this subject by the Master Car-Builders' Association, standard gauges for screw-threads have finally been made with a degree of precision which has never heretofore been attained. If the Car-Builders' Association will get a set of these gauges, and keep them among its archives as the standard of final reference, the whole subject will be put beyond dispute in the future, and it will only remain for the committee to urge railroad officers to adopt this standard and use no other in the future to effect a reform which would have saved many thousands of dollars if it had been adopted long ago.

The committee on "the carrying capacity of freight cars" has issued an elaborate circular and has received many replies to it, so that an interesting report from it may be expected.

The committee on "a standard wheel gauge" has completed its report and has recommended the adoption of a series of gauges which, if used in all car shops would certainly improve the running of car trucks make them safer, and diminish flange wear, which is now such a serious source of expense.

The committee on "automatic freight car draw-bars" is, no doubt, deserving of the sympathies of the Association, if the inventors of this much needed appliance have devoted themselves to the task, which no doubt they have, of convincing the committee of the superiority of the devices patented by the said inventors. Should the committee succeed in formulating the subject in some way so that the principles which underlie it may be understood, they will be doing a good work. Take it altogether, and it is the most urgent question which the Car-Builders' Association now has up for consideration, and it will grow more and more so each year.

Whether the committee who are to report on "a standard freight-car truck" will be able to accomplish the object for which they were appointed, remains to be seen. There seems to be good reason for thinking that the art of building such trucks was sufficiently developed to make it possible to agree upon a standard. Whether the Association will be able to do so the report of the committee will probably decide.

The committee on continuous draw-bars was continued from last year, and its report will also be looked for with interest.

Probably there will be no subject which will be discussed with so much interest, however, as the proposed amendment to the constitution, which is also published on another page. The circular which the committee sent out some months ago has elicited a large number of replies, some of them from the most prominent railroad managers of the country. With but two exceptions the measure has met with the approval of those who have replied to the circular, and these two have objected only to the feature which will make the voting power of a representative member proportionate to the number of cars owned by the company he rep-



resents. It is apparent from the way in which the proposed change is regarded, that if it is carried through successfully it will give the Master Car-Builders' Association an influence and a capacity for accomplishing the objects it had in view which it has never had before, and that the work which it will be able to do will be of incalculable value to railroads and to the country generally. It will be one of the most potent influences to help diminish the cost of transportation, to which the general prosperity is so closely allied.

Altogether, there is the best of reasons for believing that the session of this year will be the most brilliant that has ever been held, provided the bibulous individuals described in the beginning of this article are either kept at home or in some way made innocuous.

#### APRIL EARNINGS.

For the month of April our table of earnings has returns from no less than 63 railroads—a larger number than ever before. These 63 roads worked this year 47,688 miles of road, which is 5,440 miles, or 13 per cent., more than they worked last year, and is about 46 per cent. of the total now in operation in the United States. With this increase in mileage the earnings of these roads increased 13½ per cent., to \$26,942,592, and their average earnings per mile increased from \$562 to \$565, or about one-half of 1 per cent. Last year April was generally a favorable month, except for some Northwestern lines, which still suffered from snow, but generally the roads profited by shipments which had been delayed in the previous very stormy months. The 51 roads reporting in our table then showed the small average increase of 2.9 per cent. in earnings per mile over 1880; but in 1880 April was a very favorable month, the 56 roads then reporting showing an increase of 14.3 per cent. in earnings per mile over 1879, when 29 roads showed a decrease of 3.3 per cent. from 1878. Thus, though the earnings per mile are substantially the same this year as last, yet as they were generally satisfactory then, and there is a large mileage of new road this year, the earnings would be satisfactory if working expenses had not meanwhile increased considerably.

There are this year, however, great differences in the course of earnings on different roads. Of the 63 roads reporting, 18 had a decrease in total earnings, and no less than 29 had a decrease in earnings per mile, and some of these decreases are considerable, as 23½ per cent. on the Cairo & St. Louis, 17½ on the Central Iowa, 16 on the Denver & Rio Grande, 15 on the Des Moines & Fort Dodge, 22 on the Hannibal & St. Joseph, 22 on the Minneapolis & St. Louis, 47 on the Central Branch Union Pacific, 19 on the Missouri, Kansas & Texas, 20 on the Missouri Pacific, 14½ on the Texas & Pacific, 14½ on the Mobile & Ohio, 16 on the Nashville, Chattanooga & St. Louis, 31½ on the Main Line of the St. Louis, Alton & Terre Haute (Indianapolis & St. Louis) and 18 on the St. Louis & San Francisco. Most of the Southern roads and nearly all the Southwestern ones have smaller earnings, but so also have many of the Northwestern roads. Considering, however, the bad crops last year and the very light grain movement this spring, the wonder is that earnings are generally so good; and it is evident that they have been stimulated by the extraordinary immigration and the traffic produced by an active manufacturing industry, which, though perhaps much less profitable, has been probably more productive this spring than last even.

There are some very large increases in earnings per mile, however, as 53 per cent. on the Chicago & Grand Trunk, which carried an exceptionally large amount of through traffic in April; 23½ on the St. Paul & Omaha; 22 on the Hocking Valley; 61 on the Houston & East & West Texas, which still has light earnings; 98½ on the Marquette, Houghton & Ontonagon, which has profited by the early opening of lake navigation, making it possible to ship iron ore, which is its chief source of earnings; also 37½ on the Milwaukee, Lake Shore & Western, which has light earnings this year, but had very light ones last year; 50½ on the Northern Pacific, which already has nearly as large earnings per mile as the Chicago & Northwestern or the Long Island, and larger ones than the Wabash; 188 per cent. on the Ohio Central, which was not fairly at work last year; 25½ on the Peoria, Decatur & Evansville, 49½ on the Rochester & Pittsburgh (whose earnings were trifling last year); 28½ on the Union Pacific, and 28 per cent. on the Wisconsin Central.

It will be noted that while the Pennsylvania Railroad shows a small increase over last year in its earnings, the Northern Central, its controlled line through similar territory has a considerable decrease. There is not much else to indicate what trunk line earnings are; but there are facts enough to indicate the gross earnings are not large, and that net earnings are much smaller than last year.

The largest and smallest earnings per mile in April were:

Largest:	Per mile.	Smallest:	Per mile.
Pennsylvania.....	\$2,003	Green Bay, Win. & St. P.....	\$142
Reading.....	1,720	Central Branch.....	154
Northern Central.....	1,345	Cairo & St. Louis.....	184
Iron Mountain.....	776	Toledo, Cin. & St. L.....	194
Hocking Valley.....	725	Ala. Great Southern.....	197
Central Pacific.....	704	Vicksburg & Meridian.....	216
Cin., Ind., St. L. & C.....	681	Ohio Southern.....	227
Chicago & Alton.....	663	Houston, E. & W. Tex.....	232
Union Pacific.....	658	Mil., Lake Shore & W.....	241

Receipts per mile in April of the following roads are given for the last six years, if attainable:

	1877.	1878.	1879.	1880.	1881.	1882.
Ala. Gt. South.....	\$285	\$383	594	504	568	615
Atch., Top. & S. F.....	297	272	231	288	327	288
Burl., C. R. & Nor.....	133	131	133	217	241	184
Cairo & St. Louis.....	196	297	.....	.....	401	331
Central Iowa.....	867	740	645	577	723	704
Ches. & Ohio.....	.....	.....	374	510	523	574
Chicago & Alton.....	501	496	485	646	665	693
Chicago & E. Ill.....	376	407	384	526	600	579
Chic. & Grand Tr.....	.....	.....	.....	313	378	579
Chic. & N. W.....	435	604	523	568	528	498
Chic., Mil. & St. P.....	367	555	383	369	331	356
Chic., St. P., Minn. & Om.....	.....	.....	355	355	275	340
Cin., Ind., St. L. & Chic.....	523	510	517	564	612	681
Cleve., Ak. & Col.....	201	207	200	231	246	277
Denver & Rio G.....	183	286	.....	456	628	527
Des Moines & Ft. D.....	.....	.....	.....	218	423	360
Det., Lansing & N.....	.....	.....	460	519	493	571
Flint & Pere Mar.....	.....	.....	365	436	530	545
Hannibal & St. Jo.....	623	468	532	708	651	510
Ill. Cen. in Ill.....	465	476	443	472	549	584
Ill. Cen. in Iowa.....	253	316	384	308	365	344
Ind., Bom. & W. St.....	.....	.....	425	526	367	371
Int. & Gr. North.....	154	154	156	210	294	296
Kan. C., Ft. S. & G.....	.....	.....	.....	271	532	473
Lake Erie & W.....	.....	.....	.....	219	275	290
Louisville & Nash.....	392	392	467	435	462	469
Mil., L. S. & W.....	.....	.....	.....	140	175	241
Minn. & St. Louis.....	.....	.....	279	185	334	280
Mo., Kan. & Tex.....	282	363	241	411	447	361
Mobile & Ohio.....	184	219	232	280	323	275
Nash. Chat. & St. L.....	363	369	368	340	363	330
Norfolk & Western.....	291	297	278	334	407	401
Northern Central.....	1,008	848	1,009	1,188	1,495	1,335
Northern Pacific.....	.....	.....	180	258	296	451
Pennsylvania.....	1,366	1,461	1,553	1,863	1,990	2,003
Peoria, Dec. & Ev.....	.....	.....	.....	231	210	264
Phil. & Reading.....	1,676	1,239	1,422	1,616	1,494	1,720
St. L., A. & T. H.....	.....	.....	360	556	684	469
Main Line.....	.....	.....	582	662	530	545
Belleville Line.....	515	511	249	310	448	368
St. L. & San Fran.....	296	249	249	310	448	368
St. L., Ir. Mt. & So.....	420	413	465	596	800	776
St. P., Minn. & Man.....	.....	.....	429	508	575	627
Scioto Valley.....	.....	208	213	205	264	319
South Carolina.....	243	233	251	278	344	323
Texas & Pacific.....	300	301	234	392	369	315
Wabash, St. L. & P.....	.....	.....	.....	447	413	411

Of 47 roads reporting here for 1881 and 1882, 25 had larger earnings per mile in 1881.

Of 46 roads reporting for 1880, 13 had larger earnings than in 1882.

Of 38 reporting for 1879, only eight had larger earnings per mile than this year.

Of thirty roads, only four had larger earnings per mile in 1878 than in 1882.

Of 29 roads, four had larger earnings per mile in 1877 than in 1882.

Thus the comparison of gross earnings is very favorable for all years previous to 1880.

For the four months ending with April our table has reports from 62 railroads, which this year worked 48,806 miles of road, and 18 per cent. more than last year, and earned in the aggregate \$105,415,578, or 17.8 per cent. more than last year, their average earnings per mile having increased from \$2,072 to \$2,180, or 4.2 per cent. The 52 roads reporting for the four months last year showed a decrease from \$2,162 to \$2,068, or 3.5 per cent.; but not only do more roads report this year, but they are not all the same roads. Among those reporting last year and not this are the Cincinnati & Springfield, the Cleveland, Columbus, Cincinnati & Indianapolis, the East Tennessee, Virginia & Georgia, the Houston & Texas Central, the Memphis & Charleston, the Memphis, Paducah & Northern, the New York & New England, and the Paducah & Elizabethtown, and nearly all these, judging by the experience of roads similarly situated, have had smaller earnings this year than last.

The 55 roads that reported for the four months in 1880 showed the enormous increase of 16 per cent. in average earnings per mile over 1879, from \$2,264 to \$2,625. A decrease from the earnings of 1880 may still leave a railroad with large earnings, but there has been a large increase in expenses since then.

Of the 62 roads reporting for the four months this year, only 14 have smaller total earnings than last year, but 21 have smaller earnings per mile of road. The increases are not only numerous, but many of them are large, and some of them enormous. Several of these are due to the fact that the roads making them had much less than their normal earnings last year because of the snow, and a few had much new road last year which had scarcely developed any traffic last year, but this year have had something to do, and some have had both causes working in their favor this year, as the Chicago, Milwaukee & St. Paul, which gained 38½ per cent., the St. Paul & Omaha, which gained 42½ per cent., the Milwaukee, Lake Shore & Western (gain 66 per cent.), the Northern Pacific (gain 71½ per cent.), the St. Paul & Manitoba (gain 34 per cent.); while on other new roads the great gain of 55 per cent. was made by the Houston, East & West

Texas and 74 per cent. by the Ohio Central. The greatest of the other gains are 30½ per cent. by the Detroit, Lansing & Northern, 28 by the Iowa lines of the Illinois Central, 70 by the Marquette, Houghton & Ontonagon, and 53½ by the Wisconsin Central.

We will very soon begin to receive the reports for May earnings, and many of the weekly reports for that month have been unfavorable. We might naturally suppose that the traffic, in the Northwest especially, would be unusually great in May last year, not only because navigation opened then, but also and chiefly because that was the first month of the year in many districts that the railroads were not considerably obstructed by snow; but though there was then an increase over the previous months, the business of the Northwestern roads was then greatly restricted by the lateness of the season: the farmers had almost to begin their spring work in May, and this kept them so closely to their fields that they were not able to market their produce as much as usual in that month, but left that work till June, when the traffic was truly enormous. It is then with a not unusually favorable season that we have to compare last May. In June, however, earnings were extraordinary last year, and we will do well to remember this when the weekly reports for the month come in this year. The increase in average earnings per mile on the 54 roads reporting then was 13½ per cent. over 1880, though in 1880 there was an increase of 16½ per cent. over 1879. Thus a decrease this year in June will be less important than in the earlier months of the year.

#### Carrying Immigrants from New York.

Carlyle, sometime before his death, spoke of the exodus of emigrants to this country. "Frederick himself," said he, "could have not have done it better, even with absolute power and unlimited resources, than it has 'done itself' by the mere action of unfettered liberty." Had Carlyle known the history of the movement of emigration, he might have seen how little able is man to speak dogmatically on any subject, for his own "free bridge for emigrants from the old world to the new" would have taken away its controlling and regulating element, namely, the active interest of our foreign-born citizens, their relatives and friends "at home."

This, as we pointed out in some articles last fall, is the immediate cause of emigration, and we may further say, it is also the supervising regulator of its affairs. If a girl has had bad treatment from the line which brought her over, she will not choose the same for her sister, or brother, or cousin, or for whomsoever she is about purchasing a prepaid order. The steamship lines are the only parties she knows in the transaction, but these have an interest in the kind of treatment which the railroads give to passengers forwarded to them.

These influences are, of course, very limited, and to be grasped by the imagination, but one is struck with the good development of this quality in those who have immediately to do with the traffic. We speak seriously, for the quality is necessary to all who deal with affairs where accounting with human motives is a factor.

These several influences leave minor evils to be otherwise cured, but they keep Carlyle's "bridge" decent and cleanly to a marvelous degree.

The special occasion of this article, however, is to give those facts concerning the immigrant as a railroad passenger.

He is, of course, anxious to get aboard his train, for he usually knows where he is going; but although he knows, it is not always easy for the railroad official to get possession of that fact. If it is necessary to ask him, "Where?" he replies with the name of the state (as "Yahoway"); a second question brings out the name of the county, and a final third, discovers the town, which is to him the least important fact of the three. With the educated Englishman it is, however, quite otherwise; the Member of Parliament may ask to stop off at Niagara Falls on the way to Boston—an exaggeration, probably, but fresh from traffic experience.

Prepaid passengers are a very large proportion of the whole, and the various railroads have offices in Castle Garden, and also on adjacent streets, where steamship orders are exchanged for passage tickets. In such days, when 7,000 may land within twenty-four hours, there is very busy work, and a good opportunity to observe the alteration and growth of patience, not merely as an ornament, but as a down-right working quality. Railroad men as a rule lack only the ornamental part in dealing with emigrants, especially one sees what the chemist would call their "basic" kindness of heart under rough speech and vigorous grips. To observe a couple of conductors load a car with emigrants, one on the platform to pull, one below to push the heavy and heavily-laden passenger, is sufficient to rouse any one to the fact that this life is not all a dream.

The immigrant is often detained at Castle Garden by his baggage. One day during the past week it was necessary to stop all leaving until the immense number of arrivals should have been cared for.

If detained over night, the poorer class "bunk" on the floor of the great rotunda, where artistic and amusing studies of domestic life are often to be obtained. The better class of emigrants go to boarding-houses, licensed by the Commissioners of Emigration and subject to their inspection.

The methods of dealing with baggage are much in need of



improvement; and more light is needed on the question why one person should get so high a rate as 40 cents per piece with the exclusive right of the traffic across the city; which he, by the by, sublets. At least these are the facts as stated by the *Times*.

The number of emigrants is now so large that divisions between the trunk lines is easy and without contention.

As a rule, the parties are taken from Castle Garden on a steamer or a barge, 1,000 persons or less per load. The Erie and the Pennsylvania emigrant trains start from their respective depots in Jersey City; that of the New York Central from Thirtieth street and Eleventh avenue, in New York. From 10 to 15 cars form a section; about 1,500 persons went out by the Erie in a train of two sections last Monday, 5 baggage cars forming a third section.

The larger boxes and trunks usually go as baggage, but the hand baggage (one might also add neck and shoulder "bag"-gage) is very considerable. Every emigrant has a bag of some sort; many of the men a bag over the shoulder and sometimes a chest carried in the hand; the women are less heavily laden than the men, but well loaded. All or nearly all from the boarding-houses look decently clean, except the Italians.

The rule of loading is 40 persons—i. e., 40 full tickets, children free—to a car, but it is only a rule, and not an observance. As a fact, more than two persons, except in the case of boys and babies, seldom are obliged to sit in one seat, but the entire car is filled to its capacity.

Cars are provided for the number announced from Castle Garden, but the Italians, who often cross the ferries in larger or smaller bodies under contractors, etc., form a disturbing element, and sometimes evidently bring about an undesirable crowding. As a rule, however, every to-be-expected attention is shown the immigrants, and on at least several, perhaps on all, of the lines those in charge do their office with faithful kindness. The Pennsylvania trains run to Pittsburgh, generally returning empty; the New York Central to Buffalo.

#### THE CARS.

The Pennsylvania standard emigrant car must in justice be pronounced the best. It has cushioned seats upholstered in rubber cloth; not a very high deck, but sufficiently so, and besides the useless little clear-story side ventilators, has decidedly useful frieze ventilators, closed only (as is right) by a pivot plate.

Are all its cars, however, provided with water tanks?

At present, the Pennsylvania road is short of emigrant cars, and is using strictly first-class cars. One was seen that was even furnished with a mat.

The emigrant cars of the New York, Lake Erie & Western are models of what an emigrant car should be in all but one respect. They have a high deck, slat seats, which, being curved to the human anatomy are more comfortable than some first class suburban car seats; a large water-tank and good closets, as have, apparently, all the emigrant cars; but they have absolutely no ventilation. The miserable little clear-story side ventilators are worse than none, for they hide a great defect which may involve even the life of many babes, who come into them often, if not commonly, with lungs stuffed with mucus from colds or whooping cough contracted on the voyage. It is not surprising that several children (as the local papers on the line report) have died on the journey. There is no over-crowding, but there is no air (and although there are windows there will be no air at night) for those whose mere numbers are not out of proportion to the capacity of the car for seats. A hole of any sort cut in the end of the car, free of all cover or stop when it is the tail end, would be of great advantage if nothing better can be offered. Moreover, the use of old second-class upholstered car seats is decidedly objectionable—they fairly reek with filthy odors; and would be ordered out in any country having an efficient board of health control, because of their greatly increased degree of infection.

It is difficult to do justice to the New York Central's emigrant cars, as they combine merits and defects. A certain number of excursion cars are used which have every merit except a low deck. The standard emigrant car, however, has a higher deck, and some of them are cushioned in leather, but in general, judging by those seen, the seats are hard, flat, board seats, not even scooped to any shape. The human body can never rest on the end of its ham bones (in any comfort) as it must do on a flat, board seat. The advantage of a cushion is that it automatically shapes itself to the anatomy of the sitter, but any sort of seat is comfortable, however hard its substance, which offers any concavity acceptable to human convexity.

#### Foreign Railroad Notes.

Those who have been anticipating that steam would be driven from the railroads by stored electricity will not get much encouragement from a lecture which Dr. Aron delivered before the Electro-Technical Society in Berlin, April 25, on the secondary elements and their application. He estimated that to run seven miles an hour, it would be necessary to carry a pound of secondary elements (Faure accumulators) for every pound of other weight on the rails, and at a speed of 12½ miles an hour, the power stored in the accumulators would just suffice to draw themselves. For lighting trains the accumulators would be more available, but probably for this purpose enough to do all the work would make too heavy a load. He thought that an electro-dynamic machine should be driven by a car axle, and provide the electricity ordinarily when running, and supply surplus to the accumulators when running at high speed, which would be used when stopping or running very slowly. It has been proposed before that such a machine should supply

the accumulators by day, and with the aid of the latter supply the lights at night.

They have a "Minister of Communications" in Russia, who is supposed to make the railroads do their duty. One of the "governments" of Russia has recently complained that he is rather slow to act. This government made complaint in 1876 against a railroad which passes through its borders, and a commission was appointed, which in 1877 reported to the Minister that the road complained of reported in its inventory a number of buildings and a quantity of rolling stock which it had never provided. About five years have passed and the Minister has not yet got around this particular piece of work. It is intimated that persons interested in not having business attended to, by a judicious distribution of money among the higher as well as the lower employés of the department, succeed in having troublesome documents mislaid or lost so that they never get attended to.

On the Prussian state railroads in 1880-81, 41½ per cent. of all the freight carried was coal, and it yielded 24½ per cent. of the total freight earnings, and this is a traffic which increases from year to year quite rapidly and almost continuously. The total carried was 25,849,149 metric tons (2,204 lbs.), which is something less than the anthracite shipments from Pennsylvania last year. The number of ton-miles was 1,215,420,500, so that the average haul was about 44 miles. The heaviest coal traffic on a single railroad was 7,372,688 tons, on the Cologne & Minden Railroad, 60 per cent. of whose tonnage-mileage and 44½ per cent. of whose freight receipts were from coal. The increase in coal traffic over the previous year for the whole system was more than 10 per cent.

Three technical associations in Vienna have proposed to have there in 1884 an international railroad exhibition illustrating the historical development of railroads, with also an electrical exhibition, on a somewhat less extensive scale than that proposed at Berlin and afterwards abandoned. These associations (the Society of Engineers and Architects, the Polytechnic Society and the Railroad Club) have petitioned the Minister of Trade for the support of the government for such an exhibition, and say that it will depend upon the government's action. Their plan, they say, will probably not result in a pecuniary loss and may yield a small profit. The Vienna railroads have subscribed \$50,000 for a guaranty fund, dependent on the action of the government.

An order was issued last April by the management of the Prussian government railroads permitting invalids without means to travel to and from places where there are medicinal springs, in third-class cars, at the "military rates" (which we believe is about half the regular rate), provided the persons in charge of the springs or the establishment there have agreed to receive them gratis or at reduced rates. A certificate of poverty from the magistrate at his place of residence must be shown by the invalid in order to get the reduced rate.

A Russian railroad officer has designed a sort of duplex ticket. One half, the conductor leaves with the passenger, and the other half he puts over his head in a receptacle on the wall made for the purpose. The advantage claimed is that the passenger need not be asked for his ticket except just after getting on the train and just before leaving it, and that the conductor knows where to tell him to get off—which is an important matter in Russia.

The Russian Machine and Metallurgical Works at St. Petersburg turned out its thousandth locomotive on the 27th of February last. It had been on the stocks more than a year, having been begun near the close of 1880. It was designed for an exhibition at Moscow.

#### Record of New Railroad Construction.

This number of the *Railroad Gazette* contains information of the laying of track on new railroads as follows:

*Allegheny Central*.—A branch is completed from Bolivar, N. Y., to Garwood, 6 miles. Gauge, 3 ft.

*Chicago, Burlington & Quincy*.—The *Denver Extension* is completed by laying 68 miles of track between Sand Hills, Col., and Denver.

*Chicago, Milwaukee & St. Paul*.—The *Chicago & Pacific Western Division* is extended from Coon Rapids, Ia., west to Dedham, 8 miles.

*Cleveland, Delphos & St. Louis*.—Track laid from Delphos, O., east to Bluffton, 30 miles. Gauge, 3 ft.

*East Tennessee, Virginia & Georgia*.—Track laid on the Cincinnati & Georgia line from Sweetwater Junction, Ga., northwest 10 miles. On the Macon & Brunswick line track is extended northwest to McDonough, 29½ miles. Gauge, 5 ft.

*Leavenworth, Topeka & Southwestern*.—Completed to a point twenty-eight miles westward from Leavenworth, Kan., an extension of 8 miles.

*Missouri, Kansas & Texas*.—The Jefferson Branch is extended west 22 miles to McKinney, Texas. Gauge, 3 ft.

*Richmond & Allegheny*.—The *Dock Connection Branch* in Richmond, Va., 1¼ miles long, is completed.

*Union Pacific*.—Track laid on the *Oregon Short Line* from Pocatello, Idaho, southeast 23 miles.

*West & East*.—Track laid from Durant, Miss., west to Gray's Mills, 7 miles.

This is a total of 212½ miles of new railroad, making 3,208 miles thus far this year, against 1,480 miles reported at the corresponding time in 1881, 1,519 miles in 1880, 619 miles in 1879, 407 miles in 1878, and 461 miles in 1877.

#### Duplicate Initial Letters on Cars.

The following list gives the names of roads which have the same initial letters. This now causes a great deal of inconvenience and confusion in making reports and rendering accounts. It is proposed to bring this matter up before the next Car-Builders' convention for consideration. It has been proposed to distinguish these names by marking cars with the final letters as well as the initial in each word in its name, as follows: Baltimore & Potomac, instead of "B. & P.," "Be. & Pc.," Bangor & Portland, "Br. & Pd.," Bangor & Piscataquis, "Br. & Ps.," Boston & Providence, "Bn. & Pe." At present, the ambiguity resulting from the use of the same initials for cars of different railroads is certainly very great.

Initial.	Name of Road.
A. & P.	Ashtabula & Pittsburgh.
	Atlantic & Pacific.
B. & P.	Baltimore & Potomac.
	Bangor & Portland.
	Bangor & Piscataquis.
	Boston & Providence.
B. & A.	Boston & Albany.
	Brunswick & Albany.
C. P.	Canadian Pacific.
	Central Pacific.
	Cotton Plant.
C. V.	Central Vermont.
	Connotton Valley.
	Credit Valley.
	Cumberland Valley.
C. & C.	Carson & Colorado.
	Cheraw & Chester.
C. & S.	Charleston & Savannah.
	Cheraw & Salisbury.
D. & D.	Dubuque & Dakota.
	Dorchester & Delaware.
K. C.	Kansas Central, Kent County.
	Kentucky Central.
L. V.	Lehigh Valley.
	Ligonier Valley.
M. C.	Maine Central.
	Michigan Central.
	Muncy Creek.
	Massachusetts Central.
N. C.	Nevada Central.
	New Canaan.
	Northern Central.
N. P.	Northern Pacific.
	Narragansett Pier.
O. C.	Ohio Central.
	Old Colony.
P. & R.	Portland & Rochester.
	Philadelphia & Reading.
P. & W.	Pittsburgh & Western.
	Providence & Worcester.
R. & C.	Rhinebeck & Connecticut.
	Reading & Columbia.
	Richmond & Covington.
	Rome & Clinton.
S. V.	Scioto Valley.
	Schoharie Valley.
	Shenandoah Valley.
	Suncook Valley.
S. C.	Southern Central.
	South Carolina.
	Sion Creek.
W. V.	Walkill Valley.
	Warwick Valley.
W. & W.	Wilmington & Weldon.
	Waynesburg & Washington.

THE EXPORTS AND IMPORTS OF THE UNITED STATES have just been reported for the month of April by the Bureau of Statistics. Fourteen ports received 95.27 per cent. of the total value of the imports and shipped 95.17 per cent. of the total value of the exports. But the exports and imports are divided very differently among them. New York's exports were 43.8 per cent. of the total; its imports, 65.6 per cent. Boston had 8½ per cent. of the exports and 12 per cent. of the imports; Philadelphia, 4.46 per cent. of the exports and 5.85 per cent. of the imports, contrary to what is usual there, as it generally has a larger proportion of the exports than of the imports. Baltimore's exports were 6.05 per cent. and its imports 2.17 per cent. of the whole; San Francisco had 6.8 per cent. of the exports and 4.7 per cent. of the imports. In the aggregate these ports had 69.36 per cent. of the exports and 90.32 per cent. of the imports. The South Atlantic and Gulf ports, Norfolk, Charleston, Savannah, Mobile, New Orleans and Galveston, exported 24.04 per cent. of the whole, but their imports were but 2.14 per cent. of the whole. The way in which these cotton ports insist on buying the exports which they consume at New York and Boston while shipping millions of exports to Europe is remarkable. New Orleans, which has lately become an important shipper of tropical fruit to the Northwest, imported last April only about as much as Oswego, on Lake Ontario, whose imports are chiefly Canadian barley and lumber; and all the South Atlantic ports, big and little, from the capes of the Delaware to Key West, imported but \$276,767 worth, while the imports crossing the Vermont line from Canada amounted to \$506,894, and those at Detroit to \$203,830. Boston and New York together had more than one-half (52 per cent.) of the exports and more than three-quarters (77½ per cent.) of the imports.

The effect of the bad harvest and the great impulse given to consumption by the previous year or two of great prosperity and the new railroad and other enterprises on a vast scale may be inferred by the fact that in the eight months from Sept. 1 to April 30, there was a decrease of \$117,115,482 in the value of our exports, compared with the previous year, and an increase of \$61,732,848 in the value of our imports, the figures being:

	1881-82.	1880-81.	Inc. or Dec.	P. c.
Exports.....	\$519,463,178	\$636,578,663	D. 117,115,485	18.4
Imports.....	479,452,700	417,670,052	I. 61,782,648	15.6

Excess of exports..... \$40,010,478 \$221,908,611 D. \$181,898,133 82.0

We see then that in spite of the vast decrease in exports and increase in imports, the exports for the eight months



are still in excess of the imports, otherwise the situation might be considered dangerous. We naturally expect that an individual will at least not increase his expenses when his income falls off largely but if he spent but \$4,146 last year when his income was \$6,365, we will hardly be alarmed about his solvency if he spends \$4,794 this year, though his income has fallen to \$5,194. And we may not even say that he is not adding to his wealth; that depends upon what he is buying with expenditures. If additions to the stock of tools, etc., with which he gets an income, he is adding to his wealth; if simply more comforts and luxuries, he is not.

A NEW YORK RAILROAD COMMISSION BILL was finally passed in the Senate and Assembly last week, after a contest over the method of filling the commissionerships which showed very plainly that the Legislature considered them chiefly as political spoils, and that they would surely be used as such. The Democrats, believing that the present Governor would surely use the appointments to secure his own re-election and re-election, first proposed that the Commissioners should be elected by the people (which means that they should be appointed by a clique of irresponsible party managers), and then that the Governor should appoint, but not till after the expiration of the term of the present Governor, when they hope to have their own Governor; but the final issue was one of the worst schemes proposed. The next Governor is to appoint, but he must take one Commissioner from the Democratic party, one from the Republican, and the third must be recommended by the New York Chamber of Commerce, the New York Board of Trade and Transportation, and the Anti-Monopoly League. A better way of securing an inefficient commission could hardly be devised. It will be hard enough to get really capable men for the places in any event. Of the three bodies who are to recommend one member of the Commission, only the Chamber of Commerce is a reputable commercial body. The Board of Trade and Transportation was organized and is conducted by a small number of persons who have made a business of opposition to the railroads, and it does not in any way represent the interests of the customers of the railroads—the members of the Produce Exchange alone probably pay fifty times as much for freight. The Anti-Monopoly League is a political organization, framed for the purpose of opposing the railroads, and supported by an infinitesimal part of the people of the state. Every man in the state is a customer of the railroads, and the community as a whole is always inclined to think that it might get better terms and better accommodations from the railroads, as it is generally unfamiliar with the difficulties and necessities of railroad business. It is, therefore, not necessary to go to the special and organized agitators against the railroads in order to secure men who have the interests of the community at heart. The commissioners should be pre-eminently men of judicial minds, not partisans or fanatics. It is rumored that some changes have been made secretly in the bill since it first left the Assembly, but at that time is provided for powers much like those of the Massachusetts Commission, its chief duty being to investigate and report. The bill, as it finally passed the Legislature, now awaits the Governor's signature.

THE MICHIGAN CENTRAL AND THE LAKE SHORE RAILROADS have reported their gross earnings to the Michigan Railroad Commissioner for the first three months of the current year, which are very important as indications of the general condition of traffic on the western connections of the trunk lines. For three successive years these earnings have been:

	1880.	1881.	1882.
Lake Shore.....	\$4,783,843	\$4,468,954	\$3,938,084
Michigan Central.....	1,973,503	1,974,705	

The decrease from last year on the Lake Shore was thus \$530,870, or 11.9 per cent., and there was a trifling increase on the Michigan Central, which was made, however, by the aid of the addition of the 150 miles of the Detroit & Bay City road, and the extension of 63 miles of the Jackson, Lansing & Saginaw. The decrease since 1880 on the Lake Shore is \$849,759, which is nearly 18 per cent., but 1880 was an extraordinarily favorable year. The traffic in the first quarter of this year was larger than ever before—at least, the through traffic was—but it was carried at the lowest prices ever known. In consequence of the immense traffic it is probable that working expenses were as large this year as last, in spite of the more favorable weather, and if so, the Lake Shore's net earnings for the quarter were but \$1,250,000, of which nearly \$750,000 is required for fixed charges. The balance, \$500,000, is just equal to 1 per cent. on the company's stock. A dividend of 2 per cent. was paid for that quarter, but it doubtless was not all earned then.

This quarter felt very largely the effects of the railroad war, though before the end of it passenger rates and east-bound freight rates had been restored. The amount of traffic carried in January and February for less than cost made the through business of those months the largest in the history of the roads, while local traffic was in some branches rather light. The following quarter, two months of which have now past, passenger and east-bound rates were remunerative, but the traffic, especially the east-bound freight, is the lightest for some years, and the enormous west-bound freight business is carried at less than one-half of last year's rates, and local traffic is somewhat dull.

CHICAGO RAIL SHIPMENTS EASTWARD for the week ending May 20 were 24,556 tons, against 52,888 in the corresponding week of last year, 29,067 in the corresponding week of 1880, and 22,364 tons in the previous week of this year. With the exception of the previous week the shipments are the smallest for a year. Of the total the Chicago

& Grand Trunk carried 15.9 per cent., the Michigan Central 18.3, the Lake Shore 14.5, the Fort Wayne 18.6, the Pan-handle 13.8, and the Baltimore & Ohio 8.9 per cent. Thus the two Vanderbilt roads had 32.8 per cent. of the whole, against 49 in the pool of 1880, and the two Pennsylvania roads had 42.4 per cent. of the whole, against 33 in that pool. The Chicago & Grand Trunk is again far above its usual percentage.

For the week ending May 27 the shipments billed from Chicago (not including those from points west billed through Chicago) were 18,737 tons, against 38,748 tons in the corresponding week of last year and 13,637 tons in the previous week of this year. Last week the grain and flour shipments were 12,091 tons this year, against 32,061 tons last year. The provision shipments were nearly the same both years. The Grand Trunk is credited with but 4.1 per cent. of the total shipments last week, but its proportion is usually largely increased when account is taken of the shipments billed through Chicago.

MR. ALBERT FINK has been urged to accept the presidency of the Louisville & Nashville Railroad Company by the leading stockholders, directors and officers and by prominent citizens of Louisville, Kentucky and Tennessee, many of them old and intimate friends, in a way most flattering to himself. While he would very much like to accept the position, where the labor and anxiety would be much less than in his present position, where he has constantly to persuade independent companies to harmonious action, and without direct authority over agents has to provide against the consequences of their violations of their companies' agreements, yet he recognizes that he is in a manner bound to continue his services in the management of the organization which has been chiefly his own creation, so long as the companies who are parties to it consider that he is indispensable, and he will not leave at present without the consent of the Trunk Line Executive Committee, which, it is safe to say, will not readily be given.

CANAL TRAFFIC for the week ending May 22 is reported as follows by the Canal Auditor:

	1882.	1881.	Increase.	P. C.
Tons shipped.....	191,225	151,635	43,590	29.2
Miles cleared by boats.....	246,633	208,518	38,115	18.3
Tolls.....	\$24,406	\$12,931	\$11,505	89.3

The Erie Canal was not open the whole of the week last year, and this probably accounts for the increase this year, for the canal had not to compete with the rates of the railroad war until after the middle of June.

The tons of leading articles shipped by canal in this week ending May 22 were:

	1882.	1881.	Inc. or Dec.	P. C.
Wheat.....	64,703	49,986	14,717	29.4
Grain.....	42,580	20,658	21,922	106.0
Iron and iron ore.....	19,304	19,971	667	3.3
Salt.....	2,385	4,234	1,849	43.8
Coal.....	43,070	24,677	18,393	74.5
Sugar and molasses.....	75	3,498	3,391	68.0

The reduction in the shipments of salt and the almost entire cessation of those of sugar and molasses are probably to be attributed to the low rail rates.

THERE are reports of sales of steel rails in England recently at £5 2s. 6d., f. o. b., equivalent to \$24.94 a ton, which is a considerable reduction; but with \$23 duty to pay and freights in this direction firm, it is difficult to see how they can compete with American rails at \$47.50 to \$50.

## General Railroad News.

### MEETINGS AND ANNOUNCEMENTS.

#### Meetings.

Meetings will be held as follows:  
Central of New Jersey, special meeting for election of directors, at the office in Jersey City, June 23; polls will be opened from noon to 3 p. m. Transfer books close June 2.

Oregon Railway & Navigation Co., annual meeting, in Portland, Or., June 19. Transfer books closed May 20.

#### Railroad Conventions.

The Master Car-Builders' Association will meet in annual convention in Philadelphia, June 13.

The Yardmasters' Association will hold its annual convention in Baltimore, June 14.

The Master Mechanics' Association will hold its annual convention at Niagara Falls, beginning on June 20.

#### Dividends.

Dividends have been declared as follows:  
Lehigh Coal & Navigation Co., 2 per cent., semi-annual, payable June 5. Transfer books closed May 26.

Norfolk & Western, 1 per cent., quarterly, on the preferred stock, payable June 15. Transfer books close May 31.

Boston & Albany, 2 per cent., quarterly, payable June 30.

New England Railway Passenger Conductors' Benevolent Association.

The seventh annual meeting of this Association was held in Boston, May 17. President H. E. Paine presided. Delegates were present from 17 roads, representing 265 conductors. The following statistics are taken from the report of Secretary Eyer: Money on hand May 1, 1881, \$229.72; receipts during the year, \$363.33; total receipts for expense fund, \$593.05; amount received from two assessments, \$2,995; total receipts for the year from all sources, \$3,588.05; current expenses, \$254.50; benefits paid, \$2,905; total expenditures to May 1, \$3,249.50; balance on hand May 1, \$338.55. Twenty-two persons have been admitted to membership; there have been two deaths and 12 have been dropped from the rolls. The net gain in membership is eight, making a total present membership of 315. The total amount paid for benefits since the formation of the organization seven years ago is \$19,029, an average of \$1,359.21 per year. The average running expenses for each year were but 58 cents. There have been four \$1 assessments since the formation of the association.

#### Master Car-Builders' Convention.

The Master Car-Builders' Association will hold its sixteenth annual convention in Philadelphia, on Tuesday,

June 13. The Committee of Arrangements have selected the Continental Hotel as the headquarters of the Association during the meeting. Members wishing to engage rooms will communicate with the proprietor of the hotel.

The President of the Association has issued the following invitation, addressed to officers of all railroads in the United States and Canada:

"In compliance with the twenty-first section of the Rules governing the condition of and repairs to freight cars, for the interchange of traffic, I would beg to request the attendance of an authorized representative of your company at a meeting to be held at the Continental Hotel, Philadelphia, at 3 p. m. Wednesday, June 14, 1882, for the purpose of revising the rules above referred to."

The following is a list of the Committees which have been appointed to report on the subjects named which will be brought up for discussion during the session of the convention.

Committees of the Masters Car-Builders' Association for 1881-82:

On Train Brakes for Freight-Cars.—C. E. Garey, New York & Harlem Railroad, Morrisania, N. Y.; Geo. Hackett, Central of New Jersey, Elizabeth, N. J.; Leander Garey, New York Central & Hudson River, New York; J. P. Coulter, Ohio & Mississippi, Aurora, Ind.; T. Aylesbury, Kansas City, St. Joseph & Council Bluffs, St. Joseph, Mo.

On Substitution of Steel for Iron and Iron for Wood in Car Construction.—W. R. Davenport, Erie Car Works, Erie, Pa.; J. Kirby, Lake Shore & Michigan Southern, Cleveland, O.

On Improvements in Cars during Current Year.—E. E. Pratt, New York & New England, Boston, Mass.; W. H. Paige, Springfield, Mass.

On the Best Diameter for Cast, Chilled and Steel-tired Wheels, and the means which should be adopted to maintain Uniform Diameter of Wheels which are nominally of the Same Size, and whether the Tread of Wheels should be Coned and to what Extent.—H. B. Stone, Chicago, Burlington & Quincy, Aurora, Ill.; Wm. McWood, Grand Trunk, Montreal, Can.; Robert Miller, Michigan Central, Detroit, Mich.

To Recommend a Form and the Dimensions for a Standard Draw-bar and Draw-spring, and the Best Method of Bringing about Uniformity in their Construction. The committee to investigate and report whether a pair of dead-blocks or a single buffer-block gives the greatest security to trainmen and protection to freight cars, and to recommend dimensions for each.—W. B. Stone, Illinois Central, Chicago, Ill.; William Campbell, Chicago & Northwestern, Chicago, Ill.; M. P. Ford, Pittsburgh, Cincinnati & St. Louis, Columbus, O.

To Investigate and Report whether it is Desirable and Economical to Apply Brakes to all the Wheels of Freight Cars and the Best Way of Bringing about Uniformity in their Construction, and to Recommend Forms and Proportions for Standards for those Parts of Brakes which Require most Frequent Renewals.—J. W. Marden, New York & New England, Norwich, Conn.; S. A. Davis, Boston, Lowell & Nashua, Nashua, N. H.

To Investigate the Cause of Accidents to trainmen and report what Means can be Provided to Protect Train and Yardmen from Injury while in the Performance of their Duties (the Yardmasters' Association is invited to communicate with this committee).—John Kirby, Lake Shore & Michigan Southern, Cleveland, O.; J. H. F. Wiers, Pullman Palace Car Co., Pullman, Ill.

To Investigate and Report on the Present Construction of Screws and Nuts used on Cars; and the Amount of Accuracy that it is Desirable to Secure and the Best Means of Maintaining it in the Standard adopted by the Association in Richmond, Va., June 15, 1871, and to Draw up Communications addressed to the Managers and Superintendents of Railroads, showing the Necessity for the Use of Even Sizes of Screw-threads, and the Amount of Saving, as near as it can be estimated, which will Result to the Roads by strictly Adhering to this Practice.—John Orton, Canada Southern Railway, St. Thomas, Ont.; M. N. Forney, Railroad Gazette, No. 73 Broadway, New York.

On the Carrying Capacity of Freight Cars.—C. A. Smith, Union Tank Line, No. 113 Liberty street, New York; J. N. Mileham, New York, Lake Erie & Western, Jersey City, N. J.; C. E. Garey, New York & Harlem, Morrisania, N. Y.

On Standard Wheel Gauge.—(The committee to confer with civil engineers of railroads).—R. C. Blackall, Delaware & Hudson Canal Co., Albany, N. Y.; David Hoyt, New York Central & Hudson River; F. D. Adams, Boston & Albany, Allston, Mass.

On Automatic Freight Car Draw-bars.—J. S. Lentz, Lehigh Valley, Packerton, Pa.; J. J. Ferris, Housatonic, Falls Village, Conn.; Wm. Campbell, Chicago & Northwestern, Chicago, Ill.

On Revision of the Constitution.—W. T. Hildrup, Harrisburg Car Manufacturing Co., Harrisburg, Pa.; M. N. Forney, Railroad Gazette, No. 73 Broadway, New York; M. P. Ford, Pittsburgh, Cincinnati & St. Louis, Columbus, Ohio; Leander Garey, New York Central & Hudson River, New York; C. A. Smith, Union Tank Line, New York.

On Standard Freight-car Truck.—John Orton, Canada Southern, St. Thomas, Ont.; J. H. F. Wiers, Pullman Palace Car Co., Pullman, Ill.; W. B. Snow, Illinois Central, Chicago, Ill.

On Continuous Draw-bars.—D. C. Richardson, Boston & Maine, Lawrence, Mass.; F. D. Adams, Boston & Albany, Allston, Mass.; J. T. Leighton, New Haven Car Co., New Haven, Conn.

The following is the amendment to the constitution which was referred to the committee on that subject, and on which it will report:

Proposed amendment to the constitution of the Master Car-Builders' Association.

#### ARTICLE III.

SEC. 1. There shall be three classes of members, active, representative and associate members.

SEC. 2. Any person holding the position of Superintendent of the Car Department, Master Car-Building or Foreman of a railroad car shop, or one representative from each car manufacturing company, may become an active member by signing the constitution, or authorizing the President or Secretary to sign for him, and paying his dues for one year.

SEC. 3. Any person having a practical knowledge of car construction may become a Representative Member, by receiving a written appointment from the President, General Manager or General Superintendent of any railroad company, to represent its interests in the Association. Such members shall have all the privileges of active members, and in addition thereto, on all measures pertaining to the adoption of standards for car construction, or the expenditure of money, they shall each have one more vote for each thousand cars the company which they represent owns. [No railroad company shall have more than one representative member.]\* In the enumeration of four, six or twelve-wheeled cars, four axles to count as one car. The dues of representative members shall be in proportion to the whole

\* The words in brackets were proposed as an additional amendment, but no action was taken on them.



number of votes they are entitled to cast. Their membership shall cease if their appointment is revoked by any officer authorized to make it, or when such a member leaves the employ of the company by which he was appointed.

#### Pool Meetings in New York.

On Wednesday of last week there was a meeting at Mr. Fink's office in New York of the general managers and general passenger agents of the western connections of the trunk lines to consider the completion of the proposed passenger pool. The contract previously drawn up and approved has been signed by the Great Western of Canada, the Canada Southern, the Michigan Central, the Lake Shore & Michigan Southern, the New York, Pennsylvania & Ohio, the Pennsylvania Company, the Pittsburgh, Cincinnati & St. Louis, the Baltimore & Ohio, the Cleveland, Columbus, Cincinnati & Indianapolis, the Lake Erie & Western, the Wabash, St. Louis & Pacific, the Cincinnati, Hamilton & Dayton, the Dayton & Union, the Terre Haute & Indianapolis, the Indianapolis & St. Louis, and the Cincinnati, Indianapolis, St. Louis & Chicago. This includes the most important competitors for the traffic with the exception of the Grand Trunk, which has from the first been unwilling to join the passenger pool. The Ohio & Mississippi and the Indiana, Bloomington & Western are also companies which have not yet signed and that compete for part of the traffic. Some progress was made at the meeting towards settling the way in which the business of the co-operating lines should be conducted.

Thursday, Friday and Saturday there were meetings of the companies interested in the division of the Chicago shipment. Mr. Fink urged that greater effort should be made to agree upon the division before asking for arbitration, but they not arriving at any agreement on Friday, Mr. Fink made his award, with a statement of his reasons therefor. The percentages awarded are not made known, but it is understood that they are somewhat, but only slightly, different from those of the award of 1880, which were 10 per cent. to the Chicago & Grand Trunk, 26 to the Michigan Central, 23 to the Lake Shore, 23 to the Ft. Wayne, 10 to the Pan-handle, and 8 to the Baltimore & Ohio. By the contract any road may appeal from Mr. Fink's award to the Board of Arbitration, but meanwhile traffic is to be divided and balances transferred as if his decision were final; at the meeting last week one month's time was given to the companies in which to decide whether they would appeal from Mr. Fink's award. There is not now any Board of Arbitration to appeal to, and there having been found some difficulty in finding experienced railroad men who are generally acceptable for the positions, it has been proposed to have a single arbitrator, instead of a board of three, and if there is but one in all probability he will be Mr. Charles Francis Adams, Jr., Chairman of the old Board.

#### ELECTIONS AND APPOINTMENTS.

**Atlantic & Pacific.**—At the annual meeting in Boston, May 18, the only business transacted was the election of the following directors: H. C. Nutt, W. B. Strong, Thomas Nickerson, Levi C. Wade, T. J. Bun, B. P. Cheney, A. W. Nickerson, Edward F. Winslow, Jesse Seligman, C. P. Huntington, Jay Gould, James D. Fish, William F. Buckley. Messrs. A. W. Nickerson, Huntington, Gould and Buckley are new directors, replacing Alden Spear, Horace Porter, F. Butterfield and F. B. Hayes. The board elected H. C. Nutt President; E. F. Winslow, Vice-President; C. F. Tuckerman, Secretary and Treasurer; S. W. Cummings, Auditor.

**Baltimore & Hanover.**—At the annual meeting in Hampstead, Md., May 25, the following directors were chosen: A. W. Eichelberger, L. F. Melsheimer, Stephen Keefe, Hanover, Pa.; C. C. Wooden, Carroll County, Md.; William J. Hoffman, Baltimore County, Md.; Charles W. Slagle, W. H. Vickery, Baltimore. The board re-elected A. W. Eichelberger President. The road is worked by the Hanover Junction, Hanover & Gettysburg Company.

**Boston, Concord & Montreal.**—At the annual meeting in Plymouth, N. H., May 29, the following directors were chosen: J. A. Dodge, Plymouth, N. H.; W. F. Daniell, Franklin, N. H.; J. P. Pitman, Laconia, N. H.; Samuel N. Bell, Manchester, N. H.; Peter Butler, J. P. Spaulding, J. Thomas Vose, Boston.

**Boston, Concord & Montreal Branches.**—At meetings held May 29, directors were chosen for the following companies, all of which are controlled by the Boston, Concord & Montreal: **Meredith & Conway.**—President, Joseph Wentworth; directors, J. T. Vose, S. N. Bell, J. A. Dodge, B. H. Corning, J. L. Huntress; Clerk, B. H. Corning. **New Zealand River.**—Directors, J. T. Vose, J. P. Pitman, J. A. Dodge, S. N. Bell, H. L. Tilton. **Pemigewasset Valley.**—Directors, J. P. Pitman, Daniel Saunders, N. H. Weeks, J. W. Campbell, J. A. Dodge, J. T. Vose, Peter Butler, N. F. Daniell, S. N. Bell. **Whitefield & Jefferson.**—Directors, Aaron Ordway, A. L. Brown, J. A. Dodge, N. F. Daniell, N. R. Perkins, W. G. Brown, J. T. Vose, S. N. Bell.

**Breakwater & Frankford.**—At the annual meeting in Georgetown, Del., May 31, Mr. Charles C. Stockley was re-elected President, Benjamin B. Burton Secretary, and D. H. Houston Treasurer.

**Canada Southern.**—Mr. Robert Potts is appointed General Master Car-Builder, with office at St. Thomas, Ont., in place of Mr. John Orttom, who has accepted a position as General Manager of a new road in Manitoba.

**Car Accountants' Association.**—At the annual convention last week the following officers were chosen: President, A. W. Davies, New York, Pennsylvania & Ohio; Vice-President, F. B. Hannis, Red Line; Secretary, F. M. Luce, Chicago & Northwestern; Assistant Secretary, H. H. Lyon, Chicago & Alton.

**Central Vermont.**—At the annual meeting last week the old board was re-elected, as follows: J. Gregory Smith, Worthington C. Smith, St. Albans, Vt.; C. J. Langdon, Berlin, Vt.; Jed. P. Clark, Milton, Vt.; B. B. Smalley, Burlington, Vt.; W. H. Dubois, Randolph, Vt.; W. H. Bingham, Stowe, Vt.; J. H. Kimball, Bath, Me.; James W. Emery, Portsmouth, N. H.; George M. Rice, Worcester, Mass.; B. P. Cheney, Otis Drury, Jacob Edwards, Boston.

**Chicago, Burlington & Quincy.**—Mr. Godfrey W. Rhodes has been appointed Superintendent of Motive Power and Machinery, with charge of the locomotive and car departments. His office will be at Aurora, Ill. Mr. Rhodes is a Pennsylvania man, and has for some time past been Superintendent of Motive Power of the Pittsburgh, Cincinnati & St. Louis road.

**Chicago, Milwaukee & St. Paul.**—Mr. George H. Heafford has been appointed Assistant General Passenger Agent in place of J. H. Page, resigned. Mr. Heafford was formerly on the Missouri Pacific road.

**Chicago, St. Paul, Minneapolis & Omaha.**—The following circular from President H. H. Porter is dated St. Paul, May 23:

"H. A. Gray has this day been appointed Auditor of this company, as the successor of the late C. D. W. Young, with

the authority and duties of his predecessor. All reports heretofore made to Mr. Young should hereafter be addressed to H. A. Gray, Auditor C., St. P., M. & O. Railway, St. Paul, Minn."

The following circular is issued by Mr. Gray: "Referring to the above, all reports, forms and instructions of the late Auditor are hereby continued until further notice, excepting the change in address as above indicated. Where blanks addressed to Mr. Young are now in use they will be continued by erasing his name and inserting mine."

**Cleveland & Marietta.**—At the annual meeting in Marietta, O., May 23, the following directors were chosen: Larz Anderson, F. R. Baby, R. M. Galloway, B. J. Gifford, F. W. Hurst, R. C. Livingston, Thomas E. Luccock, E. Matthews, Douglas Putnam, F. B. Swayne, A. J. Warner. The board elected B. J. Gifford President.

**Columbus & Mansfield.**—The annual meeting of this company was held at Hillsboro, O., May 23, and the following directors elected: C. S. Bell, J. H. Jolly, D. F. Scott, J. H. Richards, W. R. Smith, F. J. Picard, R. T. Hough. The board re-elected Hon. C. S. Bell President; Col. F. J. Picard, General Superintendent and Chief Engineer; Gov. Alphonso Hart, Attorney.

**Concord.**—At the annual meeting in Concord, May 30, the following directors were chosen: James W. Johnson, Enfield, N. H.; Benjamin A. Kimball, Henry C. Sherburne, Concord, N. H.; Samuel N. Bell, Frederick Smythe, Manchester, N. H.; Francis B. Hayes, J. Thomas Vose, Boston. There is no change from last year.

**Georgia.**—At the annual convention in Augusta, May 10, the following were chosen: President, C. H. Phinizy, Augusta, Ga.; directors, James S. Hamilton, Stevens Thomas, E. P. Alexander, J. H. Alexander, L. M. Hill, Josiah Sibley, John Davison, H. D. McDaniel, George Hillier, W. M. Reese, John H. James, Joel A. Billups, N. L. Hutchins, F. Phinizy, M. P. Stovall, H. H. Hickman.

The road being leased, this board has not at present the control. The management under the lease is vested in a board appointed by the lessee, which is as follows: J. W. Green, J. H. Alexander, W. E. Jackson, C. H. Phinizy, W. M. Wadley, W. G. Raoul, J. J. Gresham. The officers of this board are: President and General Manager, J. W. Green; Treasurer, W. T. Richards; Auditor, Carlton Hillier; General Freight and Passenger Agent, E. R. Dorsey; Master Machinist, J. S. Cook; Master Car-Builder, T. M. Preval; Road-Master, Hamilton Wilkins; Purchasing Agent, J. W. Green; Master of Transportation, S. A. Hemphill.

**Hanover Junction, Hanover & Gettysburg.**—Mr. Hugh D. Scott is appointed General Superintendent in place of Henry A. Young, resigned.

**Illinois Central.**—At the annual meeting in Chicago May 31, of the four directors whose terms then expired, Messrs. Elliott, Gebhard and Vanness were re-elected, and Sidney Webster was chosen a director in place of William Tracy.

**Illinois Midland.**—The following circular, dated May 18, has been issued by Receiver D. H. Conklin: "The general offices of this railway will be located at Decatur, Ill., on and after Monday next, 22d inst. Please direct communications accordingly."

**Manchester & Lawrence.**—At the annual meeting, held May 26, the following directors were chosen: Edward A. Abbott, Asa Fowler, John A. White, Concord, N. H.; B. F. Martin, Nathan Parker, Manchester, N. H.; Joseph W. Smith, Andover, Mass.; Wm. A. Tower, Boston. The board elected B. F. Martin, President; Samuel N. Bell, Clerk; G. B. Chandler, Treasurer.

**Middletown, Unionville & Water Gap.**—At the annual meeting in Middletown, N. Y., last week, the following directors were chosen: Grinnell Burt, W. H. Clark, H. A. Wadsworth, H. K. Wilcox, D. C. Dusenbery, M. S. Hayne, Oscar Dunn, Caleb Clark, W. H. Wood, James N. Fronk, M. D. Stivers, Charles Horton and Geo. L. Denton. The board elected Grinnell Burt President; M. S. Hayne, Vice-President; W. H. Clark, Treasurer; J. N. Fronk, Secretary. The road is leased to the New York, Susquehanna & Western Company.

**Missouri, Kansas & Texas.**—At the annual meeting in Parsons, Kan., May 17, the following directors were chosen: Jay Gould, Sidney Dillon, Russell Sage, George J. Forrest, N. L. McCready, A. G. Dellman, Wm. Bond, Samuel Sloan, Thomas W. Pearsall, Thomas T. Eckert, Fred. L. Ames, Frank S. Bond, T. S. Hayes, H. C. Cross, C. H. Pratt, David Kelso.

**Montpelier & Wells River.**—At the annual meeting in Montpelier, May 25, the following directors were chosen: Joel Foster, Jr., S. C. Shurtliff, Montpelier, Vt.; W. H. Bingham, Stow, Vt.; S. S. Thompson, Lyndonville, Vt.; D. R. Sortwell, Cambridge, Mass. The board re-elected D. R. Sortwell, President; S. S. Thompson, Vice-President; Joel Foster, Jr., Clerk and Treasurer; W. A. Stowell, General Superintendent; F. W. Morse, General Passenger Agent.

**Mutual Union Telegraph.**—At the annual meeting, May 29, the following directors were chosen: George F. Baker, George William Ballou, H. C. Fahnestock, George J. Gould, Jay Gould, G. G. Haven, George H. Holt, John G. Moore, Charles F. Peck, Russell Sage, George F. Scott. Of these Messrs. Baker, Ballou, Holt, Moore and Peck were in the old board. The others represent the Gould or Western Union interest.

**Nashua, Acton & Boston.**—This company has elected John C. Moulton President; F. D. Cook, of Nashua, Treasurer, and John B. Goodrick, of Boston, Clerk. The road is owned and worked by the Concord Company.

**Nashua & Rochester.**—At the annual meeting in Nashua, N. H., the following directors were chosen: F. H. Dewey, F. H. Kinnicut, J. C. Eastman, E. B. Stoddard, C. W. Smith, Charles S. Turner, A. W. Sawyer, A. H. Dunlap, Benjamin Fletcher, Jr., J. C. Burley, E. Wallace, B. W. Hoyt, A. J. Pillsbury. The board elected F. H. Kinnicut President, Aaron W. Stevens, Clerk. The road is leased to the Worcester and Nashua Company.

**Kansas City, Lawrence & Southern Kansas.**—The following circular is dated May 23:

"Mr. C. C. Wheeler having been appointed General Manager of this company, will assume the duties of that office on June 1 next. On and after that date all officers and employees will report as directed by him."

Mr. Wheeler is also General Manager of the Atchison, Topeka & Santa Fe, which now controls this road.

**New England Railway Passenger Conductors' Benevolent Association.**—At the annual meeting in Boston, May 17, officers were chosen as follows: President, H. E. Paine, Old Colony; Vice-President, J. B. Colby, Concord; Secretary and Treasurer, C. E. Dyer, Eastern; Board of Directors, A. Colby, Boston & Maine; W. H. Hatch, Eastern; F. B. Cushman, New York & New England; E. Metcalf, Boston & Providence; E. G. Blodgett, Concord & Portsmouth; J.

Cunningham, of the Boston & Albany; S. N. Holden, of the Boston & Lowell, and J. E. Anderson, Maine Central.

**New York & New England.**—The following circular from President J. H. Wilson is dated Boston, May 15:

"Wm. Caleb Loring, Esq., is hereby appointed General Solicitor of this company, vice Col. E. P. Nettleton, resigned. All officers and employees of the company will give to Mr. Loring whatever assistance and information he may require in the performance of his duties."

The following circular notice from the company is dated May 17: "Mr. J. H. Gallagher is hereby appointed Train-Master of the Eastern and Woonsocket divisions, including the Providence Extension, Dedham, Southbridge, Rockville and Ridge Hill branches, and will be respected and obeyed accordingly. He will have immediate charge of all passenger and freight trainmen, and of the movement and distribution of cars, and will perform such other duties as may be required by the Superintendent. The jurisdiction of Mr. Thomas Sprague, Train-Master of the Western and Springfield divisions, is extended over the Melrose branch. Train-Masters will report to and receive their instructions from the Superintendent."

**Northern (New Hampshire).**—At the annual meeting in Concord, May 25, the following directors were chosen: Geo. W. Nesmith, Aivah W. Salloway, Franklin, N. H.; Henry C. Sherburne, George E. Todd, Concord, N. H.; Josiah D. Benton, Uriel Crocker, Francis B. Hayes, Boston; Auditors, Uriel H. Crocker, Wyman Pattee, Wm. P. Wheeler.

**Northern Pacific.**—General Manager Haupt has issued the following: "Mr. S. R. Ainslie has been appointed Superintendent of the Yellowstone Division, and will enter upon his duties June 1. The portion of the Yellowstone Division extending from Glendive to Forsythe will be opened for business upon that date. The work of construction will not be fully completed at that time, but trains both of the construction and operating departments will be run, under the direction of Mr. Ainslie, with the assistance of such train dispatchers and other subordinates as may be placed in charge. Until further orders, the office of the Superintendent of the Yellowstone Division will be at Glendive, Montana."

**Pacific Mail Steamship Co.**—At the annual meeting in New York, May 31, the following directors were chosen: Jay Gould, Trenor W. Park, Sidney Dillon, Russell Sage, C. P. Huntington, E. H. Perkins, Jr., Henry Hart, Edward Lauterbach, D. B. Houston. The only new director is Mr. Lauterbach, who succeeds Mr. C. G. Franklyn.

**Pennsylvania Railroad Leased Lines.**—The following elections are noted: **Millstone & New Brunswick.**—President, A. L. Dennis; Secretary and Treasurer, Charles B. Place. **Perth Amboy & Woodbridge.**—President, A. L. Dennis; Secretary and Treasurer, Charles B. Place.

**Peterboro.**—This company has elected James Scott President; Gilman C. Shattuck, Clerk; John G. Kimball, Treasurer. The road is leased to the Boston and Lowell Company.

**Pittsburgh, Cincinnati & St. Louis.**—Mr. M. W. Mansfield has been appointed Engineer of Maintenance of Way of the Eastern Division in place of E. W. Holbrook, resigned.

It is stated that Mr. R. H. Soule, now on the Northern Central, will succeed Mr. Godfrey W. Rhodes as Superintendent of Motive Power.

**Pittsburgh, Ft. Wayne & Chicago.**—At the annual meeting in Pittsburgh last week, the following directors (one-fourth of the board) were chosen: Pliny Hoagland, Ft. Wayne, Ind.; Amasa Stone, Cleveland, O.; John N. Hutchinson, Philadelphia. Messrs. Hoagland and Hutchinson are re-elected; Mr. Stone succeeds R. R. Springer.

**Roane Mountain.**—The officers are: President, J. B. Wilder; directors, B. M. Barton, Wm. Means, Charles Mendenhall, D. E. Reese; Secretary and Treasurer, D. E. Reese. Office in Chattanooga, Tenn.

**St. Joseph & Nebraska.**—The directors of this new company are: W. D. Eaton, T. S. Howland, C. E. Perkins, H. B. Scott.

**San Pete Valley.**—Mr. F. C. Hand has been appointed Chief Engineer; he was recently on the Denver & Rio Grande road. His office is in Wales, Utah.

**Seneca, Ottawa & Mendota.**—The directors of this new company are: M. H. Armstrong, T. D. Catlin, F. L. Fiske, Wm. H. Hull, Ottawa, Ill.; A. Bruce, Marseilles, Ill.; D. Lawrence, Prairie Centre, Ill.; A. C. McIntyre, Mendota, Ill.

**Suncook Valley.**—This company has elected Samuel N. Bell President; B. P. Cilley, Clerk. The road is leased to the Concord Company.

**Tennessee & Sequatchie Valley.**—The board has elected Charles Clinton President. Mr. P. V. Mooney is appointed Paymaster.

**Texas & New Orleans.**—General Manager J. F. Crosby has issued the following order dated Houston, Tex., May 20: "In order to effect a consolidation of the interests and operations of the Galveston, Harrisburg & San Antonio Railway Company, Texas & New Orleans and Louisiana Western railways, in so far as the same is now deemed necessary, C. C. Gibbs, General Freight Agent, and T. W. Peirce, Jr., General Ticket and Passenger Agent, Galveston, Harrisburg & San Antonio Railway Company, will take charge respectively of the freight and passenger departments of the Texas & New Orleans and Louisiana Western railway companies, and all orders emanating from these gentlemen as such agents will be respected and obeyed."

**Virginia & Truckee.**—At the annual meeting in Carson, Col., recently, the following directors were chosen: D. O. Mills, W. Sharon, H. M. Yerington, I. L. Requa, B. C. Whitman, W. H. Blauvelt, D. L. Bliss, J. W. Eckly, H. P. Cohen. The board elected D. O. Mills President; H. M. Yerington, Vice-President and General Superintendent; E. B. Yerington, Secretary; Bank of California, Treasurer; D. A. Bender, General Freight and Passenger agent; B. C. Whitman, attorney.

**Washington & Western.**—This company has been organized as successor to the Washington & Ohio with the following officers: President, William J. Best; directors, A. J. Dietrick, H. S. Terbell, E. A. Hayt, Jackson Holland, E. J. Brooks, Charles U. Williams, C. G. Lee, Wm. Dyer, C. P. Janney.

#### PERSONAL.

—Col. S. K. Johnson, for many years superintendent of the Georgia Railroad, has assumed the business management of the New York Banker and Broker.

—Mr. Henry A. Young has resigned his position as General Superintendent of the Hanover Junction, Hanover &



Gettysburg road. He has been on the road for a number of years.

It is stated that, in case Mr. Albert Fink accepts the presidency of the Louisville & Nashville Company, Mr. C. C. Baldwin, now President, will be Vice-President, with charge of the company's financial affairs in New York.

Mr. J. C. McMullen General Manager of the Chicago & Alton Railroad, who has a long leave of absence because of his ill-health, has gone to Southern California in hopes of recovery. His trouble we understand to be neuralgia, and he received little benefit from his sojourn in Florida a year ago.

The London Times says that Mr. Allport, late Manager of the Midland Railway, has been selected for nomination as the fifth New York, Pennsylvania & Ohio voting trustee. He will proceed to America with Mr. Swarbrick, late Manager of the Great Eastern Railway, to report on the position of the company.

Mr. Wm. S. Slater, a prominent and wealthy citizen of Providence, R. I., died in that city May 28, aged 65 years. He was largely engaged in manufacturing enterprises for many years, and also had considerable interests in railroad property. He was for many years a director and for several years President of the Providence & Worcester Company, and was also President of the Rhode Island Locomotive Works.

## TRAFFIC AND EARNINGS.

### Crop Prospects.

The Illinois Department of Agriculture reports for the progress of crops during April from fuller information than is usual obtained, and its report is especially important because Illinois is still the most important agricultural state, likely, however, soon to be surpassed by Iowa in the chief staple of its production.

April was a wet and cold month in Illinois. On low lands wheat was injured by excessive rains, and some fields, which were unusually forward, were injured by freezing weather April 11 and 12. But in the aggregate the condition of the winter wheat crop improved during the month. In the northern third of the state (where very little wheat of any kind is grown, and that mostly spring wheat) the Department estimates the improvement during the month as 3 per cent., and the prospect at the end of the month for a yield 5 per cent. above an average yield; in the central third of the state, which grows more than half of the wheat, there was an improvement of 3 per cent., and the promise May 1 was of a yield 3 per cent. more than the average. The condition is very variable in this division, several counties being far below an average, and none far above. In the southern third of the state, where winter wheat is a very important crop, no change in condition during the month is reported, but at the end as well as the beginning their condition was 3 per cent. above an average condition. This would make the prospect in Illinois for an average yield of about 15½ bushels per acre, 15 bushels being a full average in that state, which was exceeded about 1½ bushels in 1880, while last year the average yield is reported to have been but 8 bushels. The condition May 1 promised a crop of about 42,000,000 bushels, while from 10 per cent. more acres only 26,000,000 were harvested last year; while in 1880, from nearly one-third more acres (including spring wheat) the crop was 61,000,000 bushels, and in 1879, from a sixth more acres, it was 51,000,000.

The small area sown to spring wheat is 5 per cent. less this year than last in Illinois. The condition May 1 was good.

An increase of 6 per cent. is reported in the acreage of oats in Northern Illinois, of 9 per cent. in Central Illinois, and 14 per cent. in Southern Illinois. The condition was 3 per cent. below an average in the North, 2 per cent. below in the Centre, and 10 per cent. below in the South, because of the cold and wet weather since sowing. The increase in acreage is chiefly due to the short supply of corn, as oats will supply feed some months before corn can ripen. How short the supply of corn is the report shows, estimating the stock on hand May 1 at 37,500,000 bushels, against 72,000,000 last year and 99,000,000 in 1880.

The report says nothing of this year's corn crop, as scarcely any except in the southern counties is planted as early as May 1. The weather in May was too cold and wet for corn to be planted and thrive well, but if it is planted by June 1 and the weather thereafter is favorable, it will have plenty of time to mature.

The Kansas Board of Agriculture estimates the area in winter wheat as 1,500,000 acres. Last year the average of winter and spring wheat (only a small fraction being spring wheat) was about 2,200,000 acres. Last year, however, the yield was but 20.0, 0.000 bushels; this year the condition is exceedingly good, and in that southern latitude there remains hardly any other danger to be met except hot, wet weather just before ripening, which might cause rust, and wet weather during harvest—neither as likely to occur in Kansas as further east.

### Railroad Earnings.

Earnings for various periods are reported as follows:

Four months ending April 30:

	1882.	1881.	Inc. or Dec.	P. c.
Norfolk & Western.....	\$664,794	\$688,638	D. \$23,844	3.2
Net earnings.....	254,049	313,669	D. 59,620	19.0
Northern Central.....	1,686,942	1,706,943	D. 20,001	1.2
Net earnings.....	509,966	688,536	D. 178,570	25.9
Pennsylvania.....	14,448,219	13,889,508	I. 558,711	4.0
Net earnings.....	4,888,804	5,819,804	D. 931,000	16.0
Three months ending March 31:				
Evansville & Terre H.....	\$158,273	\$134,976	I. \$23,297	17.2
Lake St. & Mich. So.....	3,938,084	4,468,954	D. 530,870	11.9
Mich. Central.....	1,974,705	1,973,595	I. 1,110	.....
Month of March:				
Grand Trunk.....	\$186,427	\$191,718	D. \$5,291	2.8
Net earnings.....	51,480	62,538	D. 11,058	17.6
Month of April:				
N. Y., Pa. & Ohio.....	\$450,555	\$478,250	D. \$27,695	5.8
Norfolk & Western.....	171,793	.....	.....	.....
Net earnings.....	66,813	.....	.....	.....
Northern Central.....	435,129	487,273	D. 52,144	10.7
Net earnings.....	162,681	217,832	D. 55,151	25.3
Pennsylvania.....	3,855,850	3,760,372	I. 95,478	2.5
Net earnings.....	1,319,311	1,655,810	D. 336,499	20.3
Third week of May:				
Chi. & Eastern Ill.....	\$38,194	\$29,324	I. \$8,870	30.4
Chi. & Gd. Trunk.....	37,117	27,224	I. 9,893	36.5
Denver & R. G.....	135,341	122,135	I. 13,206	10.8
No. Pacific Lines.....	518,328	455,722	I. 62,606	13.7
Northern Pacific.....	134,456	70,610	I. 63,846	90.4
Wabash, St. L. & P.....	298,624	305,699	D. 7,075	2.3

### Coal Movement.

Coal tonnages for the week ending May 20 are reported as follows:

	1882.	1881.	Inc. or Dec.	P. c.
Anthracite.....	691,637	409,923	I. 281,714	68.7
Semi-bituminous.....	85,898	98,749	D. 12,851	13.0
Bituminous, Penna.....	65,404	33,393	I. 32,011	96.0
Coke, Penna.....	54,249	47,678	I. 6,571	13.8

The Cumberland strike still continues. The Consolidation Coal Co. is this week bringing in a number of miners from

other points. A strong guard of police is at the mines to prevent trouble.

The Clearfield miners have demanded an increase of 15 cents per ton in wages. The operators have refused to grant it, and a strike is expected.

The coal tonnage of the Ohio Division of the East Tennessee, Virginia & Georgia Railroad for the month of April was 8,786 tons.

The coal tonnage of the Pennsylvania Railroad for the week ending May 20 was: Coal, 168,300; coke, 54,249; total, 222,549 tons. The total tonnage this year to May 20 was 4,246,842 tons.

### Grain Movement.

For the week ending May 20, receipts and shipments of grain of all kinds at the eight reporting Northwestern markets and receipts at the seven Atlantic ports have been, in bushels, for the past six years:

Year.	Northwestern receipts.	Total.	By rail.	P. c. by rail.	Atlantic receipts.
1877.....	2,294,405	2,330,304	794,342	34.1	3,506,821
1878.....	5,929,890	4,907,025	1,957,051	39.9	6,117,072
1879.....	3,713,978	4,802,116	2,470,684	51.5	5,977,584
1880.....	6,220,796	5,231,104	1,487,857	27.8	4,960,065
1881.....	4,751,613	6,228,775	1,755,217	28.2	7,087,741
1882.....	2,607,230	1,636,435	979,924	59.9	2,124,192

The receipts at the Northwestern markets are 2,144,000 bushels (58 per cent.) less than in the corresponding week of last year and the smallest since 1877; but nearly the same as the week before. The shipments of these markets are 4,592,000 bushels (74 per cent.) less than last year, and smaller than in any corresponding week since 1873 at least, and the smallest since March this year. The rail shipments, though small, are an unusually large proportion of the whole; but the river shipments were but 39,855 bushels (2.4 per cent. of the whole), against 730,401 bushels last year; and the lake shipments were but 616,656 bushels, which is less, we believe, than for ten years or more when navigation was open. The Atlantic receipts were no less than 4,960,000 bushels (70 per cent.) less than last year, and smaller than in any corresponding week for at least eight years previous. Last year, however, the receipts of the week in question were extraordinarily large. The receipts of the week were also less than the week before.

Of the Northwestern receipts during the week Chicago had 52 per cent., St. Louis 18.8, Peoria 9.7, Toledo 7.9, Milwaukee 5.3, Detroit 3.4, Duluth 2.5, and Cleveland 0.4 per cent.

Of the Atlantic receipts New York had 57.8 per cent., Montreal 13.7, Boston 9.6, Philadelphia 7.2, New Orleans 6, Baltimore 5.5, and Portland 0.2 per cent. The notable changes here are a large increase at Montreal, at the expense, apparently, of Boston.

Exports from Atlantic ports for the week ending May 23 were 935,200 bushels of grain and 83,383 barrels of flour this year, against 3,280,568 bushels of grain and 9,191 barrels of flour in the corresponding week of last year.

For the week ending May 27 receipts at four Eastern ports were:

Bushels:	New York.	Boston.	Phila.	Baltimore	Total.
1882.....	1,817,955	81,510	141,100	121,434	2,162,099
1881.....	3,419,614	273,496	1,176,709	873,597	5,743,417
1880.....	4,199,578	393,295	1,731,400	788,276	7,112,549
P. c. of total:					
1882.....	84.0	3.8	6.5	5.7	100.0
1881.....	59.5	4.8	20.5	15.2	100.0
1880.....	59.1	5.5	24.3	11.1	100.0

Thus Philadelphia and Baltimore together received but 12.2 per cent. of the whole this year, against 35.7 last year and 35.4 in 1880. The most notable change compared with previous weeks of this year is the great decrease at Boston, which has heretofore had an unusually large percentage compared with previous years. Since the port of Montreal has been opened it seems to have lost this business.

Receipts and shipments at Chicago and Milwaukee for the week ending May 27 were:

	Receipts.	Shipments.
Chicago.....	2,560,963	2,531,717
Milwaukee.....	358,346	320,947
Total.....	2,919,309	2,852,664
	1,520,650	4,470,763

The receipts are thus a little larger than last year, but the shipments are a little more than a third of what they were then.

For the week ending May 27 receipts and shipments at Buffalo were:

	Receipts.	Shipments.
By rail.....	220,500	402,100
By water.....	1,475,000	2,135,700
Total.....	1,695,500	2,537,800
	1,214,616	3,014,500

The rail receipts are 45 per cent., and the lake receipts about 33 per cent., less than last year; the rail shipments 68 per cent., and the canal shipments 54½ per cent. less than last year.

### Petroleum.

Production, shipments, etc., of the Pennsylvania oil regions for April are given by Stowell's Petroleum Reporter as follows, in barrels of 42 gallons:

	1882.	1881.	Increase.	P. c.
Production.....	2,402,790	2,305,780	197,010	8.9
Shipments.....	1,678,134	1,348,308	329,736	24.5
Stock, April 30.....	28,547,481	25,105,789	3,441,692	29.1
Producing wells.....	19,150	15,769	3,381	21.4

The number of drilling wells at the close of the month was 405, the smallest number reported for several months. Of the stock on hand 570,233 barrels are reported at wells, 100,000 barrels at private tanks and 27,877,248 barrels in the pipe lines. Increase in stock during the month was 724,656 barrels.

The shipments are the smallest in any month since May, 1881, with the exception of January of this year.

The production is the largest on record. The Bradford District furnished 62.4 per cent. of the total, and the Allegheny District 24.9 per cent., making 87.3 per cent. from the two Northern districts.

The shipments out of the regions for April were as follows:

	Barrels.	P. c. of total.
New York.....	840,830	50.1
Philadelphia.....	231,351	13.8
Baltimore.....	19,523	1.2
Boston.....	3,092	0.2
Cleveland.....	360,665	22.0
Pittsburgh.....	26,472	1.6
Down the Ohio.....	2,500	0.1
Local points.....	120,885	7.2
Refined at Creek refineries.....	63,816	3.8
Total.....	1,678,134	100.0

Of the oil refined at Creek refineries, reduced to its equivalent in crude, 25,665 barrels went to New York, 786 to Philadelphia, 2,256 to Baltimore, 12,760 to Boston and 22,349 to local points; total, 63,816 barrels.

Of the shipments from producing points 461,248 barrels, or 27.4 per cent., were by rail, and 1,216,886 barrels, or 72.6 per cent., by pipe line.

### Rates on Fruit from Georgia.

General Freight Agent Joseph M. Brown, of the Western & Atlantic road, has issued the following tariff on peaches and melons from Atlanta:

Atlanta to	Per car.	Smaller lots per 100 lbs.
Nashville, Tenn.....	\$40	45
Louisville, Ky.; Evansville, Ind.; Cincinnati, O.;	50	65
Cairo, Ill.....	60	80
St. Louis and Indianapolis.....	65	95
Chicago.....	65	90
Toledo, O.; Cleveland, O.....	65	95
Detroit, Mich.; Springfield, O.....	65	95
Columbus, O.; Dayton, O.....	60	85

The car-load rate is a little less than 25 cents per bushel from Atlanta to Chicago.

These rates are by ordinary fast freight. Arrangements are now being made, however, to run special fruit trains from Atlanta to Chicago and St. Louis, and to secure refrigerator cars for the trade.

### Express Line Changes.

The following circulars were issued from the office of Wells, Fargo & Co. at Kansas City, May 24:

"The Adams Express Co. will withdraw from the Atchison, Topeka & Santa Fe and Atlantic & Pacific Railway lines May 31, 1889, and will surrender any real property now occupied by it and assign all leases for said property to Wells, Fargo & Co., Wells, Fargo & Co. assuming all such leases; also any existing unfinished agreements of the Adams Express Co. for express business on the said lines of the said railways."

"In addition to the foregoing, Wells, Fargo & Co. will on July 1 assume control of the express of the Chicago, Burlington & Quincy and the Burlington & Missouri lines west of the Missouri River. This comprises the following lines: The main line from Plattsmouth and Omaha to Denver; the Nebraska line from Nebraska City to Calvert; Atchison & Nebraska Railway from Atchison to Lincoln and Columbus; the Republican Valley Railway and its branches."

These lines comprise 1,250 miles of railroad, and are now occupied by the American Express and the United States Express, who will vacate in favor of Wells, Fargo & Co. An office will be opened in Denver by Wells, Fargo & Co., and they will run messengers through to that point from Kansas City.

### Iowa Trunk Lines Association.

At a meeting held in Chicago last week it was agreed to pool all freight to junction points in Nebraska on the Union Pacific, the Sioux City & Pacific and the Chicago, Burlington & Quincy roads. This action is taken to prevent a recurrence of the recent cutting in rates to Lincoln and other points in Nebraska.

### Pacific Through Freights.

Shipments of through freight eastward by rail from California points in April were as follows, in tons:

	Central Pacific.	Southern Pacific.	Total.
San Francisco.....	2,327	4,088	6,415
Interior points.....	1,767	4,591	6,358
Total.....	4,094	8,679	12,773

Two things are notable in this statement: First, that very nearly half the shipments were from interior points, while formerly over 80 per cent. came from San Francisco; second, that the Southern Pacific in April carried 67.8 per cent. of the total shipments.

Shipments for the month included 2,418 tons of wheat and 1,666 tons of flour, of which only 1,157 tons of wheat and 40 tons of flour went by the Central Pacific.

For the four months ending April 30 the shipments were divided as follows: Central Pacific, 12,269 tons, or 30.6 per cent.; Southern Pacific, 27,838 tons, or 69.4 per cent. In the eight months since the Southern Pacific was opened it has carried 36,385 tons, while the Central carried 49,975 tons.

### Wool Rates from California.

The Boston Advertiser says: "The lowest rate for bringing California wool from San Francisco to Boston is 2½ cents per pound, and yet the same railroads contract to bring wools from Australia to Boston, via San Francisco, for 2 cents a pound. That is to say, their rate for transporting domestic wool over the 3,000 miles of road from San Francisco to Boston is 2½ cents, but they will bring foreign wool 7,280 miles by sea, and then carry it over the same 3,000 miles of railroad, all for 2 cents."

### Southern Railway & Steamship Association.

General Commissioner Virgil Powers issued the following circular addressed to members of the Association, under date of May 19:

"I have been requested by the Rate Committee of the Southern Railway & Steamship Association and by the Executive Committee of the Green Line to get up and submit to the various lines of the Association and Green Line a form of a uniform way-bill.

"There is no doubt that the use of one form of way-bill by all lines is to be desired, and would tend to economy and efficiency of service. To aid me in getting it up I request that you send me three of each form of way-bills—local and through—in use by your line. Your early attention will oblige."

### Michigan Railroad Earnings.

The following statement is received from Mr. W. C. Ransom, Deputy Railroad Commissioner of Michigan:

The earnings of the railroads of Michigan, as compiled in the Commissioner's office, for the month of February, were as follows:

Gross earnings, February, 1882.....	\$4,331,585
1881.....	3,495,114

Increase (23.9 per cent.).....\$836,471

The total gross earnings this year to March 1 amounted to \$8,904,835.

## THE SCRAP HEAP.

### Locomotive Building.

The Rogers Locomotive Works at Paterson, N. J., has been shipping a number of engines to the Louisville, New Albany & Chicago road.

The Baldwin Locomotive Works in Philadelphia have taken a contract to build 60 engines for the Pennsylvania Railroad, to be turned out as soon as possible.

H. K. Porter & Co., in Pittsburgh, have their works full of orders for light locomotives. They are building an addition to the shops 50 by 75 ft. in size.

A recent report that a large number of men had been discharged from the Pennsylvania Railroad shops at Altoona is contradicted. The shops are full of work, both on repairs and new construction, and contracts have been let outside for a number of new engines, the company's own shops being unable to build all that are needed.



## Car Notes.

The Southern Car Works at Knoxville, Tenn., now have a capacity of 10 box cars a day. The blacksmith shop has just had eight fires added. They have lately completed 200 box cars for East Tennessee, Virginia & Georgia, and are building 60 stock cars for the same road.

The Missouri Car & Foundry Co. in St. Louis has just finished a large order for refrigerator cars, and is now building 200 gondola cars, 34 ft. long, for the Louisville & Nashville, and 200 box cars for the Blue Line.

The Louisville & Nashville shops at Mobile, Ala., have just completed two handsome parlor cars, to be used for the summer travel to the resorts on the Gulf coast.

The Tennessee Coal, Iron & Railroad Co. offers for sale or lease its machine and car shops at South Pittsburgh, Tenn. The shops are supplied with the best machinery and have a capacity of two cars a day. There is also a saw-mill on the Tennessee River, surrounded by an abundance of the best timber.

The Pullman shops at Pullman, near Chicago, have received orders for 60 first-class, 20 second-class passenger coaches, and 21 baggage and mail cars for the New York, West Shore & Buffalo Railway. Twenty first-class passenger-coaches are nearly completed for the New York, Lake Erie & Western, and 10 first-class, 10 second-class and 6 baggage and mail cars have just been finished for the Toledo, Cincinnati & St. Louis. Six passenger-cars have been delivered to the Chicago & Eastern Illinois and two handsome parlor coaches are nearly ready for delivery to the same road. Seven first-class passenger coaches are being delivered to the Chicago, St. Paul, Minneapolis & Omaha. One hundred box-cars are being built for the New York, West Shore & Buffalo. Twelve first-class coaches will be ready for delivery to the St. Louis & San Francisco Railroad in about two weeks. Thirty first-class, 10 second-class, and 20 baggage, smoking and mail cars have been ordered by the Chicago & Atlantic road. The company is also building for its own use 130 magnificent palace-cars of the latest and most approved design.

Contracts for new cars for the Shenandoah Valley road have been let as follows: W. C. Allison & Co., Philadelphia, 100 gondola cars; Bowers, Dure & Co., Wilmington, Del., 100 box and 50 combination cars; the Ohio Falls Car Co., Jeffersonville, Ind., 200 stock cars.

## Bridge Notes.

The Keystone Bridge Co., of Pittsburgh, is putting up a new bridge over the Monongahela River at Brownsville, Pa., for the Pennsylvania Railroad.

The Massillon Bridge Co., of Massillon, O., has just finished a combination highway bridge over Tanner's Creek at Indianapolis, and has just taken a contract for another bridge of the same class, 154 ft. span, for the same city.

The Baltimore & Ohio Railroad Co. is building a bridge shop 300 by 70 ft. at the Mt. Clare shops in Baltimore.

The Pittsburgh Bridge Co. has taken the contract for the iron and steel work needed for the Davis Island dam, near Pittsburgh.

H. S. Hopkins & Co. in St. Louis have contracts for a wrought-iron draw-span over the Saline River, for the Little Rock, Mississippi River & Texas road; 16 Howe-truss spans for the St. Louis & San Francisco, and nearly three miles of trestle for the Toledo, Cincinnati & St. Louis.

## Iron and Manufacturing Notes.

The Tredegar Co. in Richmond, Va., has very heavy orders for railroad spikes, and is turning out 20,000 lbs. a day.

The Pennsylvania Nut & Bolt Co. has been organized with \$100,000 capital, and will build works at Lebanon, Pa. Carnegie Brothers, of Pittsburgh, have contracted for 300,000 tons of iron ore from the mines at Wollaston, Ontario.

The Kittanning Rolling Mill at Kittanning, Pa., is putting in new rolls for the manufacture of merchant bar.

The Arnold Furnace Co. has leased the Thomas Furnace at Niles, O., from its owners.

Lookout Rolling Mill in Chattanooga, Tenn., is running on merchant bar and light rails, and will put in machinery for making rail-joints.

The Blair Iron & Coal Co. has put its Bennington Furnace, in Blair County, Pa., out of blast for repairs.

Isabella Furnace, in West Nantmeal, Pa., has been repaired, and was to go into blast this week.

The Chattanooga Boiler Works in Chattanooga, Tenn., are building boilers for the Roane Iron Co., the Chattanooga Iron Co., Rising Fawn Furnace and other parties.

A new rolling mill is to be built in Canonsburg, O., to have a capacity of 15 tons of iron a day.

The new rolling mill of the Vulcan Forge & Iron Co. at Chartiers, Pa., is nearly ready for use.

The Chattanooga Iron Co. is rebuilding its blast furnace in Chattanooga, Tenn. It will be ready to start up early in July.

Union Furnace, at Windsor, Pa., has gone into blast. It is owned by Daniel B. Fisher.

The Roane Iron Co. in Chattanooga, Tenn., is running double turn, making 200 tons of steel rails a day. The company has one of its blast furnaces at Rockwood, Tenn., in blast; the other one is being repaired.

The Bordentown Steam Forge in Bordentown, N. J., has shut down for want of orders.

The rolling mill at Berwick, Pa., which was recently burned down, is being rebuilt as fast as possible.

## The Rail Market.

More inquiry for steel rails is reported and a number of sales, mostly of small lots, have been made. Quotations continue at \$47.50 per ton at mill for next fall and winter delivery, up to \$50 for immediate orders. At these prices the market is active and steady. There is quite a demand for light rails, which are quoted at \$51.50 to \$53.

For iron rails there is a fair demand, and sales are reported at \$44 to \$49 per ton at mill, according to section, etc.

Spikes are steady at \$2.90 to \$3 per 100 lbs.; fish-plates, \$2.40 to \$2.50; track-bolts, \$3.50 to \$3.60 for square heads and \$4 to \$4.10 for hexagon heads and nuts.

Old iron rails are very dull at \$26 to \$26.50 per ton in Philadelphia for tees, and \$27.50 for double-heads, with very few sales.

## Reminiscences of an Old Locomotive Engineer.

In a letter to the *American Railroad Journal* from Mr. J. Van Buren, of Clarksville, Ga., written to correct some statements in an article on "The First Train Between Albany and Schenectady," the writer says:

"In the first place, who am I, and what my means of knowledge of the facts mentioned? I was born in Schenectady, in 1800, consequently am now nearly 82 years old. I am a regular machinist, and went into the employment as Superintendent of the foundry and machine works of Clute & Bailey, in 1829, where I remained until 1835, this being then the only foundry and machine establishment in the city. The Mohawk & Hudson Railroad was completed in 1830 or 1831; William Young was the Chief Engineer in its construction, instead of John B. Jervis, whom I never knew or heard of. William Young resided in Church street, Schenectady, next door to my brother-in-law, John

Strong. I knew him very well, and saw him every day for several years. The Mohawk & Hudson Railroad was operated for two or three years after its completion entirely by horse power. A half-way house was built by the company on the line of the road, where the horses were changed for fresh ones in going both ways. The first locomotive placed upon any railroad in the United States was put on the road known as the Schenectady & Saratoga Railroad, in 1832. It was built by George Stephenson, at Newcastle-upon-Tyne, England, and imported by the Schenectady & Saratoga Railroad Company. A man by the name of Turner came with it as engineer, and your humble servant assisted him in setting it up and driving it from time to time to and from Saratoga. All the repairs needed on the engine and road were made at the shops of Clute & Bailey, before mentioned. The first locomotive put on the Mohawk & Hudson Railroad was built by David Matthews, a young man from New York, at that company's works, which they had just erected at Schenectady, and it was named 'Brother Jonathan.' It was a four-wheeled engine, and somewhat larger and better constructed than the Stephenson engine above mentioned. I was personally acquainted with a number of the gentlemen whose names are mentioned in the article published. John I. Degraff is the person whose recommendation induced me to come to Georgia, where I have resided for 42 years. My brother, who lost his life in the Angola accident, married a daughter of John Meigs, the well-known Chief of Police in Albany for many years. As to the exploits of Billy Marshall (with a stick of wood as a signal), I think they may be set down as a myth, for both locomotives carried a bell, and all necessary signals were given by it until the whistle was added, some 30 years afterward. The description of the coaches first used is very accurate. They were built by James Gould, of Albany, and Ward & Ross, of Schenectady. I have been a resident of Clarksville, Ga., from 1839 up to the present time; am living on my small farm, have excellent health, and am the first and oldest locomotive engineer, I suppose, living, for I ran the first one placed upon a railroad in the United States.

"Respectfully yours, etc., J. VAN BUREN.

"P. S.—Should my life and health be spared until next August, I intend to drive a locomotive from this place to Tallulah Falls, so that I can say I have driven the first and last locomotive up to date."

Mr. Van Buren has certainly become very forgetful. Mr. John B. Jervis certainly was Chief Engineer of the Mohawk & Hudson Railroad, and that road had at least one locomotive from New York and two from England before it built the "Brother Jonathan" at its own works in Schenectady. David Matthews, however, did run the "Dewitt Clinton," the first locomotive on the road, and superintended its construction at the West Point Foundry in New York, as a letter from Matthew himself testifies.

## A Negligent Conductor.

When the train going west over the Detroit, Lansing & Northern Railroad had pulled out of Howell the other day, the conductor discovered that a man who should have stopped off there was still on board.

"Didn't you hear the brakeman call out your station?" he asked.

"Yes, I heard him call Howell, but how did I know it was the Howell I wanted to get off at? I've never traveled over this road before."

"Well, we don't have but one Howell on this line."

"Then why didn't you come to me like a man and say so? I'm from Nova Scotia, and how was I to know but that your country was full of Howells?"

"Passengers should know where they want to get off," muttered the conductor.

"So they should, sir, and if you had kindly come to me and notified me that this was the only Howell, and that this was the Howell where my aunt lives, I should not now be here, sir. I shall now decline to get off this train until I have the advice of her majesty's consul at Detroit."—*Detroit Free Press.*

## The American Freight-Car Brake.

The following is a report of a special trial of the automatic freight car brake of the American Brake Co., made on the St. Louis & San Francisco road, May 22:

Trial stops with American Brake Co.'s automatic freight-car brake between Springfield and Marshfield, May 22, 1882:

Speed. Miles per hour.	Time. Seconds.	Distance. Yards.	Grade. Feet per m.
25	50	320	45
20	42	340	60
15	37	210	40
22	46	298	35
18	33	187	50

The train consisted of a Baldwin consolidated locomotive and tender, equipped with the American Brake Co.'s steam driver and tender brake, 25 freight cars equipped with their automatic brake (of which 18 were loaded and 7 empty), and a caboose car and passenger coach having only the ordinary hand-brakes. The weight of the train complete was 566 tons. The train was run over the St. Louis & San Francisco Railroad from North Springfield to Marshfield, a distance of 24 miles. No hand-brakes were used.

## Tramps.

The Rochester & Pittsburgh engineers have a new and very effective way of getting rid of ride-stealing tramps, by drawing them off the platform by a hose from the locomotive.—*Rochester (N. Y.) Democrat and Chronicle.*

The following are the particulars of a struggle for life on the top of a moving freight train on the Mobile & Ohio road: Mr. W. B. Connolly went up to the top of the train after dark and found three negroes stealing a ride. He asked them for their fare and they replied that they did not intend to pay anything. Mr. C. told them if they had no money they must either help the engineer or get off the train. The negroes said they would see who would get off first, and started toward the engine, as if to assist the engineer. From the tender one of them secured a billet of wood and came back over the top of the train, and while Mr. Connolly had his back turned, standing near one of the brakes, he was struck across the temple and knocked almost senseless.

Then began a struggle for life on top of the train, which was running at the rate of 30 miles an hour. The wounded and stunned brakeman clutched the plank walk and made a desperate resistance to the three brutes, who beat him and bit his back, shoulders and neck in a horrible manner.

They repeatedly informed him that they intended to kill him, and from the injuries inflicted it is evident that to murder him was their intention. They succeeded in getting his right hand loose, and bit his thumb on that hand while they endeavored to loosen the hold of the other, so they could throw him off the train. After they had beaten and bit him for some time, the whistle was blown for State Line, and this fact, Mr. Connolly thinks, is all that saved his life. When the train slowed up for State Line, the negroes jumped off and escaped in the darkness. The wounded man was heard groaning, and found on the top of the train lying in a pool of blood. He was cared for by the railroad attendants and sent back to Mobile.—*Atlanta Railroad Record.*

## A New Time and Distance Register.

Mr. E. R. E. Cowell, of the Pullman Palace Car Co. of this city, has invented and patented a contrivance for registering the distance traveled by railroad cars which promises to attract no little attention. He calls it a "mileage and speed indicator." It has been running a few days on the Michigan Central and gives the best satisfaction, working accurately. It differs from the ordinary speed register in that it is electric and not run by gearing connected with the car axle. A casting called the commutator is "screwed on the car axle, one-half being a conductor and the other a non-conductor of electricity. In contact with this is a metal brush, and as the axle revolves the electric circuit from the battery in the car connected with the metal brush is alternately made and broken. Four hundred and eighty "breaks" in the circuit cause an ingenious clockwork in the car to register one mile of distance. The uses to which this device can be put are numerous. The ordinary indicators are used to check the rash impulses of freight conductors to run over the regulation speed, but these machines have not been put on passenger cars, as they are too complicated, troublesome and expensive. Mr. Cowell's device is neither, and could be used to settle the question of how far cars are run by the lines which use them, as well as in many other ways which will suggest themselves to railroad men.—*Detroit Post and Tribune.*

## Rapid Transit for Live Stock.

A train of 10 improved stock cars, containing 158 head of fine Western cattle, arrived at the Sixtieth street yards in this city at 11:40 o'clock Sunday night. This train left Chicago Friday noon and ran to Buffalo on slow time, but from Buffalo to New York a speed of from 30 to 45 miles per hour was maintained. This is said to be the quickest trip ever made by a live-stock train. The improved cars enable each animal to occupy separate stalls; each stall is provided with flexible gates, so that the animals can lie down and move about without coming in contact with each other. There are also facilities for watering and feeding the stock without unloading. The weight of the 158 cattle, just before leaving Chicago, was 228,098 pounds, an average of 1,430 pounds per head. Early yesterday morning the entire 158 head were re-weighed at the Sixtieth street yards, in the presence of their owner, Mr. T. C. Eastman, and several other gentlemen, and their aggregate weight was found to be 222,870 pounds, an average of 1,410, showing an average shrinkage per head of only 20 pounds. The usual shrinkage, under the old system of transportation, is from 70 to 100 pounds per head. All of Mr. Eastman's cattle were in fine condition yesterday. They will be shipped for Europe per steamer Holland in a few days. The improved cars, which are owned by the New York Live Stock Express Co., will be sent to Maine some time during the week for the purpose of taking a load of fancy cattle to Chicago.—*New York Times, May 30.*

## A Long Race.

The new fast train on the Atchison, Topeka & Santa Fe marks a new era in Western railroading which will be of inestimable benefit to all the people, but more especially to the people of Denver. The Kansas Pacific, with its 639 miles to travel, consumed 28 hours in making them, or less than 23 miles per hour. The Santa Fe, with over 100 more miles to travel, made about the same average and consequently came in several hours behind, with the additional disadvantage of a change of cars at Pueblo. Like a flash this is all changed. The rate has been expedited to nearly 30 miles per hour and a through train put on. There is every reason to believe while this is a very great change it is merely a step toward a greater one. It is the first move in a big fight on time, which far exceeds in importance even a fight on rates. Notwithstanding the advantage which the Kansas Pacific possesses in its shorter road, it will hardly be able to hold its own with the all steel rail route and fine rolling stock of the great Banana line. With fast locomotives and other improvements the prediction is made that the run to Kansas City will yet be made in 20 hours. The trains of the rival roads stood alongside of each other in the Union depot, Kansas City, on Monday morning, like two athletes ready to spring away. The Santa Fe *Advertiser* told the *Republican* to take a front seat and he would see some fun. The gauntlet had been thrown and the challenge uttered. "I will be in Denver before you," said the Santa Fe. "Try it," responded the Kansas Pacific. At 9:25 the latter pulled out quickly, and as the last car crossed the Kaw River, away went the Santa Fe, with the "Jeff Coolidge" in advance, Dickerson driving and Brady conductor. The run to Topeka, 65 miles, was made with only one stop, and when the "Coolidge" sounded her whistle in the capital of Kansas the Kansas Pacific was already miles behind. Old "316" then hitched on, and when Glazier touched the throttle Brady whispered to him: "Put her through if she busts a trace." Glazier nodded, and as the *Republican* climbed to a seat behind him in the cab, he pulled her open for Nickerson, 180 miles away, and what a ride it was!

On every hand nodded the wheat fields of the greatest harvest ever known. The valleys seemed to smile with plenty and with peace, and with welcome to the "Thunderbolt." Into and through villages and hamlets the fast train sped, the people gathering in crowds and wondering why it did not stop, as usual. Some even walked up as if to board it when it stopped, but ere they could draw back from the cyclone of air caused by the rush, the "Thunderbolt" was disappearing in the distance.

Stopping only at cities like Emporia, the "Thunderbolt" sped over into Walnut Valley and then into the garden of Kansas, the valley of the Arkansas. The sleek cattle looked up from the waving grass on every hand, while the farmers paused in the furrows and shouted as the old "316" shrieked her greeting. The shades of night were closing, and the day was kneeling down before the night when the "Thunderbolt" paused at Salem to slake its thirst. It was due at Nickerson at 7:25. When the pipe was hoisted Glazier looked at his watch and it marked 7:18, with Nickerson six miles away. "Make it, Al," said Brady, as he gave the signal, and the engineer said, laconically, "Easy." Down the level stretch the big train ran. The telegraph poles began to look like fence posts, the cab rocked until the *Republican* man began to get seasick. A culvert was passed with a roar, a house fled by like a sheet of brown paper in a cyclone, the whistle shrieked once, the air brakes hissed and old "316" stood still at Nickerson. The reporter looked at the watch. It marked 7:25 precisely.

Division Superintendent Nickerson stood on the platform as Walt Hislop backed down "206" and coupled on to the "Thunderbolt." The night had fallen, and "206" was a little cranky, but Hislop held her level, and sent her along with her headlight burning a hole in the night at the rate of 40 miles an hour, while on every hill blazed huge fires like beacons of welcome. It was the prairie grass, and the fires formed a continuous Fourth of July celebration. On through the Mennonite settlements the "Thunderbolt" rocked and whirled with a shriek and rumble; stopping at Larned, and once on the open prairie, until Dodge, 134 miles, was reached, and so on, until 8 o'clock in the morning the train rolled into Pueblo, 5½ hours ahead of the old time. A few minutes' wait only, and then the "Thunderbolt" started up the valley, climbed the divide and then, pausing a minute, sped down the other side and into Denver. As the engine stood



paning and trembling with the race the depot clock marked 2:15. As it stood there the K. P. whistled at the crossing, 15 minutes late. The "Thunderbolt" had traveled 100 miles more and won the race.—*Denver (Col.) Republican, May 18.*

#### The Cleveland Iron Strike.

A dispatch from Cleveland, O., says: "A new and decided turn has been taken in the labor difficulty at the Cleveland Rolling Mills, and if quite authentic rumors become official it will be bad news for the 5,000 or 6,000 who are out of work because of the strike. The story is that the Cleveland Rolling Mill Co. has decided to keep all of its establishments closed until September. Their orders on hand at the time of the strike were comparatively few and unimportant, and a number of them were rescinded on notification. Such contracts as were important are said to have been now transferred to places where there is no trouble, leaving the Cleveland Co. unfettered. If the officers of the company have decided on this course, there will be three sore and hard months ahead for the Newburg suburb. In corroboration of the story is the fact that C. F. Emery, who has the contract for all the mill teaming, is now selling off his horses by the score. The leaders among the strikers say that the whole story is a scheme of the Rolling Mill Co. to scare them back to work, but that it will not operate. The closing up, however, would be in exact accord with the well-known tactics of this company, and would, therefore, cause no surprise. It has always managed its own affairs, and would sacrifice no little money before abandoning that management to the amalgamated association. The iron business does not promise great activity this summer, and the closing would be accomplished without much loss."

#### Transfer of Iron Mines.

The *American Manufacturer* of May 26 says: "The recent report to the effect that the Cambria Iron Co. had purchased the mines of the Menominee Iron Co., of Milwaukee, has been confirmed. The mines transferred were the Quinnesec, Cyclops, Norway and Vulcan, and the consideration expressed in the deed was \$1,000,000, while the terms will net, outside of this cash amount, about \$800,000 to the Menominee Co. The latter will continue to operate the mines during the remainder of the present year, and the new company will establish an office in Milwaukee next January, the officers being as follows: E. J. Townsend, President; Charles S. W. Wurtz, Vice-President; Powell Stackhouse, Comptroller; John P. Kille, Treasurer; W. S. Robinson, Secretary; D. J. Morrell, General Manager. Up to the present time the Cambria Company has been compelled to import large quantities of ore from Spain and other foreign countries, and the purchase of the Menominee mines will now enable them to use American ore. Considering the extent of the Cambria Works and the amount of the material used by them, it will be readily seen that the purchase will stop the importation of a considerable quantity of foreign ore. It appears that no satisfactory terms could be agreed upon in reference to the sale and purchase of the Chapin Mine. The price asked was \$5,000,000, while the Cambria Co. considered \$2,000,000 a fair price, and the Menominee Co. therefore still holds possession of the mines."

The mines named are all in the Lake Superior iron region.

#### A Horrible Accident.

At about 3 o'clock Thursday morning the fragments of a human being were found scattered along the tracks for 40 rods or more, within the corporate limits of Salamanca, but so horribly crushed and torn were the remains that identification has been impossible up to nearly 9 o'clock that morning, when train No. 8 left. Even the silver money in the man's pocket was found to be flattened, and all reports agree that it was one of the most horribly crushed remains ever seen. The only hope of identification seems to be in the unfortunate man's clothing.—*Port Jervis (N. Y.) Gazette, May 27.*

#### Fast Steamboat Time.

On Thursday of last week the "Mary Powell" made the trip up the Hudson River from New York to Rondout, 95 miles, in 4 hours and 17 minutes, beating her best previous time by 10 minutes. This is at the rate of 22½ miles an hour, and included the time taken in making eight landings.

#### Gardening on the Erie.

Travelers along the line of the Delaware Division of the Erie have noticed or late some quite successful attempts at improving the grounds about the stations. It is an improvement that the traveling public will welcome and one that will find much favor from the citizens living at the various points alluded to.

The credit for the innovation is due to Superintendent Neilson, of the Delaware Division. In talking over the matter last fall with Mr. Beckwith, the Delaware Division plumber, it was ascertained that an old building, useless for any other purpose, could be turned into a greenhouse with but a trifling expense, as the necessary piping, etc., was around in abundance among the old material and debris of great shops like the Erie. At Mr. Neilson's suggestion the Union published his request that persons having surplus plants that would be only thrown away would confer a favor by donating them to the new greenhouse. The popularity of the new idea, for the Union stated the purpose of the request, was shown by the number of persons sending word to call for plants. Many more were offered than could possibly be used, and the variety was great enough to satisfy the most exacting taste. The sum of \$60 was expended for pots and that comprised the cash outlay for the whole affair. As a result, this spring Mr. Neilson has a collection of plants that he estimates would have cost him \$1,500 if bought in market, but which have cost as above—a mere nothing.

Early this spring a piece of land between the tracks, west of the depot, triangular in shape, was neatly inclosed with a wire fence, and has been sodd, save three parts of it, which are now being filled with beautiful flowering and foliage plants. Similar decorations have been constructed at Lackawaxen, Narrowsburg, Callicoon and Hancock, and it is hoped to add Deposit to the list.—*Port Jervis Union.*

#### Fighting a Swamp.

The Tamarack Swamps, near Sharpsville, Pa., were supposed to be an innocent sort of bog until the New York, Pennsylvania & Ohio Railroad Company undertook to lay a solid roadbed across them. At first a few thousand cubic yards of earth were dumped upon the surface by the contractor with careless generosity, as much as if to say, "That will satisfy your appetite, my soft friend." But when the earth immediately disappeared and left no trace behind a coarser diet was substituted. The company purchased from a furnace the accumulated cinders of ten years, and since January about 5,000 carloads of this substantial provender have been dropped into the swamp's voracious maw without visibly decreasing its capacity. Occasionally at night there are evidences of repletion, but in the morning the murky water presents an unruined face and asks for more. A solid roadbed could be laid close by, entirely avoiding the swamp, but the company has elevated its corporate back and does not intend to be beaten by a miserable tamarack swamp as long as there is a dollar in the treasury.

#### A Narrow Escape.

An engineer on a Boston, Hoosac Tunnel & Western Railroad train Thursday, by rare presence of mind, averted what would have been a terrible accident. Between Reynolds station and Mechanicsville is a deep cut. On one side is a hill of clay and on the other a deep ditch. The train was just entering the cut when the engineer, Charles Siloway, of Mechanicsville, discovered that the hill was moving and that in a moment it would be down upon the cars, causing great damage and probably loss of life. He knew he could not stop in time to avert the accident so he grasped the throttle with a strug hand and pulled it wide open. The train sped with lightning-like rapidity and it had barely cleared the cut when the earth fell with terrific force, covering the track 10 ft. deep for a distance of 200 ft. Had the earth struck the train it would without doubt have been hurled down the embankment and the loss of life must have been great.—*Utica Herald, May 20.*

#### In the Depot.

Just before a Western-bound train left the Union depot yesterday morning, a masher with his little grip-sack slid around to a woman standing near the ticket office and remarked:

"Excuse me, but can I be of any assistance in purchasing your ticket?"

"No, sir," was the short reply.

"Beg pardon, but I shall be glad to see that your trunk is properly checked," he continued.

"It has been checked, sir."

"Yes—ahem—you go West, I presume?"

"I do."

"Going as far as Chicago?"

"Yes, sir."

"Ah—yes—to Chicago. I also take the train for Chicago. Beg your pardon, but didn't I meet you in Buffalo last fall?"

"No, sir."

"Ah! Then it was in Syracuse?"

"No, sir."

"No! I wonder where I have seen you before?"

"You saw me enter the depot about five minutes ago with my husband, I presume!"

"Your husband?"

"Yes, sir, and if you'll only stay around here three minutes longer you'll make the fifth fellow of your kind that he has turned over to the coroner this month!"

Some mashers would have made a run for it, but this one didn't. He went off on the gallop, and as he wanted to go light he left his grip-sack and a ton of brass behind him.—*Detroit Free Press.*

#### Rochester Car-Wheel Works.

These works have not ceased work a single day during the recent financial complications following Mr. C. A. Chapin's death. The affairs are now on a secure basis, with Mr. W. H. Barnum President; Mr. W. K. Chapin, Vice-President; Mr. C. T. Chapin, Secretary and Treasurer, and Mr. James Campbell, Superintendent. During the year ending April 1, 1882, the company made and shipped over 30,000 wheels, employing about 50 men and doing a gross business of over \$425,000. The works are now making 100 wheels per day, largely from Salisbury iron. The general management will be under the supervision of Mr. W. K. Chapin, who has been connected with the company since its organization. Mr. Campbell, who has charge of the manufacture, has had over 30 years' experience in the business. Mr. Barnum's interests in car-wheel manufacture, aside from the production of the Salisbury iron, are now very large, including works in Lime Rock, Conn., Chicago, Huntington, W. Va., Worcester, Mass., and Jersey City.

#### Finding a Cave.

While a force of men were at work on the Live Oak & Rowland's Bluff Railroad, between Live Oak and the Suwannee River, in Florida, recently, they made a startling discovery. In throwing up the roadbed one of the men struck a rock with his spade. The rock was thrown out of its place when a hole in the ground about 10 in. in diameter was found. This excited curiosity and the mouth of the hole was enlarged, and it appeared to extend some distance into the ground. A long pole was put down, but it failed to touch the bottom. Finally one of the men volunteered to go down and explore the hole. A strong rope, between 40 and 50 ft. in length, was procured, to one end of which the man was securely fastened, after which he was carefully let down into the hole. He was lowered to the depth of about 35 ft., but failed to reach the bottom. Before being hauled up he found the skeleton of a man, which had apparently been there for many years. The bones were very soft from age and would crumble upon being handled.

#### OLD AND NEW ROADS.

**Allegheny Central.**—On the new branch of this road from Bolivar, N. Y., track is now laid to Garwood, six miles, and this section was opened for traffic last week.

**Allegheny Extension.**—This company has been organized under a special charter from the state of Virginia, to build an extension of the Richmond & Allegheny road to a connection with the Ohio Central's proposed line through West Virginia.

**Boston, Concord & Montreal.**—At the annual meeting in Plymouth, N. H., May 29, the following was presented:

"Resolved, That if, after paying the dividends at the rate of 3 per cent. semi-annually on the preferred stock, there shall be in any year any excess of the net earnings in the hands of the corporation that in the judgment of the directors may be properly divided among the stockholders, such excess be divided among the different classes of stock in the proportion of 1 per cent. on the preferred stock, 7 per cent. on the new stock and 2 per cent. on the old stock, and if any excess shall exist above the amount of 7 per cent. on the preferred and on the new stock, and 2 per cent. on the old stock, the same may be divided in the proportion of 1 per cent. of each of the said classes of stock, until the dividends so paid on the preferred and new stock shall, together with the dividends already paid, be equal to semi-annual dividends of 3 per cent. on such preferred and new stock, from the time of the respective issue of such preferred and new stock."

This was adopted by a large majority, and the directors were instructed to secure the assent of stockholders not represented at the meeting.

**Breakwater & Frankford.**—The stockholders of this company have approved an agreement of consolidation with the Junction & Breakwater and the Worcester road. The three roads are owned by the same parties.

**Canada Junction.**—This road is now completed to the Vermont state line at East Franklin, and the engineers are completing the location to Sheldon Junction, Vt., where connection will be made with the St. Johnsbury & Lake Champlain road.

**Carolina Central.**—Application has been made for the removal of the suit of Mrs. Virginia B. Matthews against this company from the North Carolina Court to the United States Circuit Court. The application will be heard July 11.

**Central American Pacific.**—This company has filed articles of incorporation in New York, its object being to build a railroad from San Jose, Guatemala, to Esquintla, and from Esquintla to the city of Guatemala. The capital stock is fixed at \$1,000,000.

**Central Pacific.**—Work is now actively in progress on the extension of the California & Oregon Division from Redding, Cal., north to the Oregon line. For some distance beyond Redding the work is light, but some very heavy grading will have to be done further north.

Work is in progress on the extension of the Northern Division from Willows to Tehama, 36 miles. This line passes through a very fine country, already well settled.

Work has also been begun on the Southern Pacific branch line from Mohave to the Colorado River, where it is to meet the Atlantic & Pacific road.

**Central Vermont.**—The suits against this company in the United States Circuit Court have been set over until the fall term. The decision of the Supreme Court of the state in the Langdon suit will probably be made before that time, and may possibly do away with the necessity of further litigation.

**Cherokee.**—Work is now well advanced on the extension of this road from Cedar Town, Ga., west to Pryor, on the Selma Division of the East Tennessee, Virginia & Georgia. The distance is about eight miles.

**Chesapeake & Ohio.**—It is stated that this company has leased or purchased from the Louisville & Nashville the Lexington Branch of the Louisville, Cincinnati & Lexington road from Lagrange to Lexington, 68 miles. Also that an agreement has been made under which its trains will run over the main line from Lagrange to Louisville.

**Chicago, Burlington & Quincy.**—The last rail on the Denver Extension was laid May 25, and the work of finishing up is nearly ended. Freight trains will begin to run through to Denver in a few days, and regular passenger trains about July 1.

The contracts for building the Denver Extension were closed Aug. 1, 1881, and by Aug. 15 the construction work was under way. The construction has been performed in 219 working days. The contractors were E. M. Reynolds & Co. of Rock Island, and A. J. Street of Denver. The extension has been built with a dispatch and rapidly almost unexampled. On April 10 a stipulation was signed by the contractors that from that date track should be laid at the rate of two miles per day. A force of 600 men has since carried forward the surfacing and track-laying. At times since the contracts were awarded a force of 2,000 men were employed in building grade and construction bridges. The completion of the connection on May 25 was four days in advance of the limit of the contracts. The initial point of the Denver Extension was at Culberson, Neb., at the west line of Red Willow County, and 322 miles west of Plattsmouth, on the Missouri River. From Culberson to the state line between Nebraska and Colorado is 70 miles, and from the state line to Denver is 173 miles further.

The new road traverses the valleys of three streams—the Republican, the Chief Creek, a fork of the Republican, and the South Platte—and, for a distance of about 50 miles eastward from Denver, parallels the Julesburg line of the Union Pacific Railway. The grades are 32 feet maximum, with no curves of over 2½ degrees. There are two stretches of track, one 31 and the other 27 miles in length, that are perfect air-lines. At Akron, 111 miles east of Denver, upon the crest of the plains, the first view of the Rocky Mountains is obtained, and, though 130 miles distant, are boldly and clearly outlined to the spectator. Thirty miles northward from Akron, and in perfect view, are Fremont's Buttes. The completion of the line to Denver enlarges the Burlington's trans-Missouri system to an aggregate of 1,250 miles, which, added to the company's lines east of the Missouri, makes a system of nearly 4,000 miles. The new division terminals west of the river will be as follows: First Division, Plattsmouth to Red Cloud; Second Division, Red Cloud to McCook; Third Division, McCook to Akron; Fourth Division, Akron to Denver. The distance from Chicago to Denver by the new route is 1,044 miles.

Through trains will run over the main line from Chicago to Plattsmouth, thence over the Burlington & Missouri River main line to Hastings, and thence over the Republican Valley main line to a connection with the Denver extension. These lines in Nebraska, it will be understood, though known by their several titles, are consolidated with the Chicago, Burlington & Quincy, and are identical with the main system. The route, with the exception of an elbow between Hastings and Red Cloud, is direct; but the officers of the company say that engineers are already locating a cut-off line from Kenesaw, west of Hastings, to Arapahoe, west of Red Cloud, which will effect a saving in distance of 27 miles. The distance from Kansas City to Denver by the new route will be 649 miles, or more than 100 miles shorter than the longest route, and 10 miles longer than the shortest line. The company will equip the Denver line with 20 locomotives, 18 passenger coaches, 8 Pullman sleepers, 12 mail, express and baggage cars, and 1,500 freight and live-stock cars. This equipment is now in a forward state of construction. Some of it is completed, and the remainder will be delivered before the middle of June. The cost of the extension will probably exceed \$4,000,000. The company has secured adequate terminal grounds at Denver. For the present, at least, it will not occupy the Union depot jointly with the Union Pacific and other roads, but will erect a temporary passenger station of its own.

**Chicago & Eastern Illinois.**—In the United States Circuit Court, in Chicago, last week, the Chicago, Danville & Vincennes Company filed the mandate of the Supreme Court, entered upon the appeal from the decree of foreclosure, and entered a motion before Judge Drummond for an order re-referring the cause to the Master to take proof and report the amount of past due interest upon the first-mortgage bonds. The motion was deferred until the arrival of Judge Harlan early in June, when it will be heard.

**Chicago, Milwaukee & St. Paul.**—The track on the Chicago & Pacific Western Division is now laid to Dedham, Ia., eight miles west of the late terminus at Coon Rapids, and 175 miles from the starting point at Marion.

**Chicago, Texas & Mexican Central.**—It is said that the Gulf, Colorado & Santa Fe Company is negotiating for the purchase of this road, which is now completed from Dallas, Tex., to Cleburne.

**Cleveland, Delphos & St. Louis.**—Track on this road is now laid from Delphos, O., east to Bluffton, 30 miles, and the grading is done to Carey, 31 miles beyond Bluffton. The road is intended to run from Delphos east to Medina and thence northeast to Cleveland, about 150 miles, with a branch of 20 miles from Medina to Akron. It will give the



Toledo, Cincinnati & St. Louis an eastern outlet and a direct connection to Cleveland.

**Columbus, Chicago & Indiana Central.**—At a meeting held in New York, May 22, the bondholders finally agreed to the plan proposed by the committee for the foreclosure of the consolidated mortgage, the formation of a new company and the settlement of the litigation with the Pennsylvania Railroad Company. Bonds to the amount of \$9,271,000 were voted in favor of the committee's plan. There were no votes in opposition, but \$2,688,000 of bonds were not voted.

**Columbus & Glenwood.**—This company purposes building a suburban line, to be worked by steam power, from a point in Columbus, O., to Green Lawn and the state institutions. The necessary permission was last week secured from the City Council.

**Concord.**—At the annual meeting in Concord, N. H., May 30, a resolution was offered that the annual report be not accepted because of its obscurity and omissions, and that the directors be asked to submit a clearer statement of the affairs of the road. This gave rise to a sharp discussion, but the resolution failed to pass.

**Connotton Valley.**—At a meeting of the board in Boston last week the transfer of the Connotton Valley & Straitsville property to this company was finally ratified and the deed executed and delivered. This line will be known as the Straitsville Division.

By vote of the directors it was resolved that measures be taken as soon as possible to construct the Straitsville Division for a distance of about 50 miles from Canton, on the line already surveyed and partially constructed, and that the Western Executive Committee be instructed to obtain proposals for the work from responsible parties, and to execute the contract as soon as possible for the completion of the work. This will extend the line to a point near Coshoc-ton, leaving open the question of reaching Zanesville by way of Coshoc-ton or by another route for future consideration. In accordance with the terms of the plan of reorganization, which has been adopted, the last three assessments of the subscription to the new 6 per cent. bonds will be payable at the company's office, No. 13 Exchange street, Boston, on the following dates: 25 per cent. on June 1, 1889; 25 per cent. on July 1, 1889; 25 per cent. on August 1, 1889. Subscribers are requested to present their exchange certificates in order that the payment of the several assessments may be stamped thereon. As the new bonds bear interest from May 1, 1889, interest at 6 per cent. will be charged upon any delayed payments.

**Denver & New Orleans.**—A dispatch from Denver, Col., May 26, says: "The Denver & New Orleans Railroad Company has entered suit against the Atchison, Topeka & Santa Fe Railroad Company to compel the latter to pay the former proper shares of the tolls on through western freight consigned via these two roads. The suit, if successful, will probably break the tripartite pool between the Union Pacific, the Denver & Rio Grande, and the Atchison, Topeka & Santa Fe roads."

This road is now connected with the Union depot in Denver, Col., by a temporary track, which will soon be replaced by a permanent structure. The Denver & Rio Grande Company endeavored to prevent by force the laying of the temporary track, but has been restrained by the court from interfering.

**East Tennessee, Virginia & Georgia.**—On this company's Cincinnati & Georgia line from Atlanta, Ga., to Rome, tracklaying is in progress from the junction with the Georgia Pacific, 17 miles from Atlanta, and the rails are down for about 10 miles.

On the Macon & Brunswick line tracklaying was to be begun this week from Atlanta southeast. On the Macon end track is now laid to McDonough, 59½ miles from Macon. The grading is nearly all done.

**Fast Mail Trains.**—By direction of the Postmaster General negotiations are now pending for an increase in the speed of the fast mail trains between New York and Chicago. The question of extending the fast mail service West of Chicago is also under consideration.

**Fond du Lac, Amboy & Peoria.**—It is again reported that negotiations are pending for the sale of this road to the Chicago, Milwaukee & St. Paul. It extends from Fond du Lac, Wis., to Iron Ridge, 30 miles.

**Genesee Valley.**—To overcome the difficulties attending the entrance of this road into the city of Rochester, N. Y., it is now proposed to connect the road with the Rochester & Pittsburgh outside of the city, and use the track and stations of the Pittsburgh road.

**Georgia.**—At Eatonton, Ga., May 25, arguments were heard in the suit begun by this company to enjoin the Railroad Commissioners from attempting to enforce their tariff rates as published upon this road. The claim is that the Commissioners have no right to fix freight rates for this road, its original charter authorizing and specifying certain maximum charges, which it is allowed to make. The hearing was expected to last several days.

**Gulf, Colorado & Santa Fe.**—The Chicago Times says: "A conference between railway officials, which may eventuate in a combination of magnitude and importance, was held in Chicago a few days since. Officers of the Gulf, Colorado & Santa Fe Railroad came here to canvass with officers of Chicago roads a scheme which has for its object the extension of the former system to a connection with Chicago. The visiting officials were Geo. Sealy, President; Frank P. Killeen, Secretary and Assistant General Manager, and A. J. Davis, a director of the road. These gentlemen want either the Chicago & Alton or the Chicago, Burlington & Quincy to build to a junction with the Gulf, Colorado & Santa Fe. They discussed the whole matter with the officers of the Chicago & Alton. The proposal which these gentlemen submit to the Chicago & Alton is as follows: That the Gulf, Colorado & Santa Fe Company will extend its line from Fort Worth to the southern boundary of Indian Territory; that the Chicago & Alton shall extend its line from Kansas City to the northern boundary of Indian Territory; and that the two interests shall then join in a new company and build the intermediate section of road across Indian Territory. The Gulf, Colorado & Santa Fe interest proposes to carry one-half the securities of the road across Indian Territory, the Chicago & Alton to subscribe for an equal amount. This line if built conformably with the general direction of the Gulf, Colorado & Santa Fe, would cross Indian Territory about 100 miles west of the Missouri, Kansas & Texas Railroad, and, it is claimed, would traverse the richest portion of that reservation. By way of inducement to join in this combination, the Gulf, Colorado and Santa Fe will guarantee its northern ally and connection 400,000 bales of cotton annually, besides the bulk of the cattle traffic of Western Texas, which, it is claimed, will of itself nearly support the operating expenses of the new line. The company, it was claimed by its representatives, transported last year nearly 300,000 bales of cotton. They assert that the cotton staple, like the live-

stock traffic, will come this way for market. The officials of the Chicago & Alton have not encouraged the representatives of the Texas road to hope for any assistance from the former company. They admit, however, that the scheme promises well on its face."

**Hannibal & St. Joseph.**—Testimony is now being taken by a Commissioner on the new application made by this company for an injunction to restrain the Governor of Missouri from selling the road. Officers of the company say that no proposition for a compromise with the state has been made.

**Hartford & Connecticut Valley.**—The contract for the construction of the extension from Hartford, Conn., north to Springfield, Mass., about 27 miles, has been let to Adam Driesbach & Co., of New Jersey. Work is to be begun early in June, and finished by January next.

**Illinois Central.**—A board of United States engineer officers, consisting of Gen. J. T. Parker, Gen. Godfrey Weitzel and Col. W. F. Comstock, assembled last week in Chicago to examine into this company's claim to a strip of land 100 ft. wide along the lake front of the city.

At the annual meeting, May 31, the stockholders approved the lease of the Chicago, St. Louis & New Orleans road, to take effect July 1. They also authorized the building of two branches of that road to run east and west from Canton, Miss. The ratification of the lease was unanimous.

**Kent County.**—This Maryland road has been transferred to John W. Stirling and Richard Hynson, as trustees for the bondholders. The present management is continued, but a new company will probably be organized.

**Leavenworth, Topeka & Southwestern.**—Track is now laid for 28 miles westward from Leavenworth, Kan., and work is progressing towards Topeka, 57 miles from Leavenworth.

**Massachusetts Central.**—The committee appointed to investigate the condition of the Massachusetts Central Railroad has submitted a report. Three million and twenty-five thousand dollars was derived from the entire issue, \$3,500,000, of bonds. The road has a floating and contingent debt of \$360,000, and the estimated cost of completion is \$937,000. The road is now, for the first time, really paying operating expenses, but the rolling stock is owned by Munson, the contractor, subject, however, to mortgages held by parties who advanced him the money. The condition of affairs leaves but two courses to be pursued. One is to begin proceedings to foreclose the mortgage and apply to a court for the appointment of a receiver. The other is to raise money by subscription to complete the road. The committee recommend that the directors increase the capital stock \$1,000,000; that additional bonds to the amount of not over \$1,000,000 be issued secured by a second mortgage; that all the overdue coupons be exchanged for capital stock, and that \$800,000 be raised by subscription to be used in paying the July coupons and other indebtedness, and in completing the road; that a committee be appointed to secure subscriptions and the funding of the coupons, and also act with the directors in making a settlement with Munson under his contract; that the board of directors be reorganized; that negotiations be had with the Boston & Lowell Railroad with a view to canceling the lease; and that a contract for terminal facilities in Boston be made with that or some other railroad company; that the road be put under contract for completion to Northampton; and that the question of constructing it to the Hoosac Tunnel via Deerfield be left for future consideration.

**Memphis & New Orleans.**—This company proposes to build a railroad on the east bank of the Mississippi from New Orleans to Memphis, 517 miles. The road is to be so built that the roadbed will serve as a levee, to protect the country against overflow from the river. The company asks Congress to guarantee its bonds at the rate of \$50,000 per mile.

**Missouri, Kansas & Texas.**—The track on the Jefferson Road (formerly the East Line & Red River road) is now laid to the Houston & Texas Central crossing at McKinney, Tex., 36 miles westward from the old terminus at Greenville, and 160 miles from Jefferson. Trains run through to McKinney this week.

**New York & Boston Inland.**—The Boston Advertiser says: "The route now sketched for the projected Boston & New York Inland Railroad to enter this city leaves the line of that originally contemplated at a point where the city of Newton and the towns of Dedham and Needham come together, and thence continues down through West Roxbury and connects with tracks of the West Roxbury branch of the Providence Railroad at a point near what is known as Central Station. In West Roxbury the location, as contemplated, passes directly through the property which was at one time known as the Brook farm. This property is now owned by a German benevolent organization, and is known as the Martin Luther Home. The line enters the West Roxbury District on the estate of George Kempton, near the line separating it from the estate of W. R. Wheeler, and thence continuing, crosses in the order named the following estates and streets: I. D. Richards, Patrick Tracy, Martin Luther Orphan Home, John Cunningham, Baker street, Thomas Cunningham, Lagrange street, A. F. Whittemore (five estates), George H. Burditt, Oak street, James A. Whittemore, Corey street, George H. Gooding, Centre street, N. L. Chamberlain, heirs of C. Woodward, Betsy Draper and Richard Dinnin, and joins the West Roxbury Branch of the Providence Railroad on the estate of Mary White, near Central station. The new location avoids Brookline and the Back Bay territory entirely. The engineer of the new road estimates the cost of constructing the 39½ miles of road in the state of Massachusetts at \$4,775,148."

**New York City & Northern.**—The New York Loan and Improvement Company has entered an additional judgment against this company for \$923,697, being for money advanced and interest. This loan had been secured by the pledge of \$1,841,000 second-mortgage bonds. Under this suit the previous appointment of a receiver was confirmed. In the Supreme Court, on May 27, a petition was filed by Henry Villard and others, holders of first-mortgage bonds, asking that they be allowed to intervene in the suit, and that an additional receiver be appointed, to represent their interest in the road. The Court took the petition and reserved its decision.

**New York, West Shore & Buffalo.**—The West Shore & International Bridge Company has been organized to build the short branch from this road in Buffalo to connect with the International Bridge.

From a comprehensive article in the Utica Herald of the 25th inst., on the present condition of this road between Utica and Syracuse, the following facts are gleaned: The road between the two cities named runs through the towns of Manlius and DeWitt in Onondaga County, nearly across the widest parts of the towns of Sullivan and Lenox in Madison County, and through parts of Vernon, Westmoreland, Kirkland, Whitestown, and New Hartford, in Oneida

County, and through the Seventh, Twelfth and Eighth wards of the city of Utica. With three possible exceptions, the right of way through Oneida and Madison counties is secured. In Syracuse the company has secured an excellent route without interfering with business interests or valuable private property. The road runs out of the city nearly parallel with the Chenango Valley line, with which some trouble has been had. East of the city a mile of track is laid.

The West Shore line crosses the New York Central tracks near DeWitt, Onondaga County, where a heavy fill will be made. There will be 2,123 cubic yards of masonry built here, and a bridge 121 ft. long will be placed upon the abutments. There are 216 men and 66 teams at work in this county, and as the ground is very level, construction is being pushed forward rapidly. It the western part of Madison County little work has been done, but in the eastern part it is well along. About five miles west of Canastota the canal is crossed by the longest bridge between Syracuse and Utica, and stone work has already been made up to the canal level for this purpose. A strip 2½ miles long from Oneida west will be finished in 60 days. At Oneida a Y connects the West Shore road with the New York, Ontario & Western. At Oneida Castle a large trestle has been built and is now being filled. At Oneida the village wants an overhead crossing at Broad Street and the company wants to build at grade. The matter is now in the courts.

At the Clockville road near Oneida the abutments are up for a bridge 60 ft. long. Within two miles east of Vernon the road has five crossings requiring bridges. The bridges are made by the Central Bridge Co. The highest point between Syracuse and Utica is about 330 ft. above tidewater at Albany. Near by at Hecla Pond it will be necessary to build 776 cubic yards of masonry at a cost of about \$8,000. About two-fifths of the masonry required in this county is done and the work is generally well along.

The distance from Syracuse to Utica via the West Shore Line is 46½ miles, or seven miles less than the New York Central. Of this 46½ miles, 19 are now reduced to grade, and, with a little trimming up, are ready for ties and rails. This does not include the mile Y at Oneida. The 19 miles, too, are much above the average of the 46 in difficulty of construction. The heaviest cuts and fills are finished or approaching completion.

The construction of the road so far is first-class. Steel rails weighing 67 pounds to the yard will be used. The company have nearly 500 platform cars, built by the Michigan Car Co. of Detroit, which have been delivered at Oneida. They are capable of carrying 20 net tons.

**Norfolk & Western.**—This company's statement for April and the four months ending April 30 is as follows:

	April.	Four months.
Gross earnings.....	\$171,793	\$664,794
Expenses.....	104,980	410,745
Net earnings.....	\$66,813	\$254,049

For the four months there was a decrease of \$23,844, or 3.5 per cent., in gross earnings, and of \$59,619, or 18.9 per cent., in net earnings. The expenses include estimated proportion of yearly taxes.

**Northern (New Hampshire).**—At the annual meeting last week, the stockholders voted to accept the act of the New Hampshire Legislature authorizing the consolidation of the Concord & Claremont with this company, and to give the directors power to carry it into effect. The Northern Company owns a controlling interest in the Concord & Claremont road.

**Northern Pacific.**—The Casselton Branch is now graded and ready for the track to Forest River, 45 miles beyond the terminus at Maysville, Dak., leaving 60 miles of grading and 105 miles of track to reach the Manitoba line.

In Philadelphia last week Mr. Villard addressed a number of gentlemen interested in the road. He stated that since the opening of spring the road has carried four times the number of passengers that it did in the same time last year, and that when the country along the road is more developed its earnings will be enormous. According to a report just submitted by Thomas T. Oakes, Vice-President of the company, who has completed an inspection of the road, it was in a perfect condition with the exception of the Dakota Division, and the traffic now being carried was never equaled in volume. The wheat crop this year that the road will carry will be increased over the yield of 1881 by at least 33 per cent. The construction of the road has been delayed very much during the last 15 months by the scarcity of labor, but since the recent anti-Chinese agitation commenced in Washington, which has caused the labor speculators of the Pacific coast to import 25,000 Chinamen since the agitation began, the company has been enabled to increase the force of men employed in completing the building of the road. Mr. Villard thought that by Nov. 1, 700 miles of road east of Portland would be completed. He argued that feeding lines must be built along the line of the main road to develop the country, which would increase the traffic of the road and enable it to pay handsome dividends. He concluded by discussing a financial scheme for the construction of feeders, and stated that a circular explaining it would be sent to the stockholders in a few days.

**North Pennsylvania.**—The Philadelphia North American says: "The syndicate, composed of F. A. Comly, E. C. Knight, W. H. Stevenson, Pardee & Co., Henry Lewis and Richard J. Dobbins, who bought the 30,370 shares of North Pennsylvania stock formerly owned by the city at par (the amount being payable in city loans and in 20 quarterly installments), still owe the city for 12,784 shares, being some 12 payments behind. The last payment was to have been made in June of 1883, and the total amount owed reaches half a million of dollars. The syndicate wishes to make a cash settlement based on the premium on the city loans, and the City Solicitor will probably act upon the proposition to change the form of payment again."

**Oregon Railway & Navigation Co.**—This company has let contracts for the construction of a dry-dock at Albina, about one mile north of Portland, on the east bank of the Willamette. The dock will be 400 ft. long, 115 ft. wide at the top, 46 ft. deep at high stage of water, and will cost in the neighborhood of \$250,000. Work has already begun. A second enterprise commenced is the construction of an immense central depot for the various railroads coming into Portland. Ground will soon be broken for the foundation of the new structure, which will be built of the most substantial materials, 500 by 600 ft. in size, and is to cost \$1,500,000. A contract has also been let by this company for the construction of 57 miles of new railroad, from Pendleton to La Grande, in Eastern Oregon, the work to be completed by September, 1889. This extension opens the rich Grande Ronde Valley, and renders available for settlement a large tract of valuable land.

**Philadelphia & Atlantic City.**—Negotiations, which have been in progress some weeks, have been finally concluded for the sale of the controlling interest in this road, now held by Wm. Massey, to the Camden & Atlantic Company. The agreement has yet to be submitted to the stockholders of the last-named company, but it makes provision for the sale of the stock to the Camden & Atlantic directors



personally, should the stockholders fail to ratify. Nothing has been said about purchasing other stock besides Mr. Massey's. The purchase includes a large amount of the bonds also, and it is possible that the mortgage may be foreclosed, if that is found to be the quickest way to terminate the receivership of the road which now exists.

It is announced that the Camden & Atlantic Company, as soon as it gets possession, will put the road in good condition, and will use it chiefly for freight and local business, leaving its own line clear for the through passenger business between Camden and Atlantic City.

**Pennsylvania.**—This company's statement for April shows for that month, as compared with April, 1881, on all lines east of Pittsburgh and Erie:

An increase in gross earnings of..... \$95,478  
An increase in expenses of..... 431,977

Net decrease..... \$336,499

For the four months ending April 30, as compared with the corresponding period in 1881, the same lines show:

An increase in gross earnings of..... \$558,711  
An increase in expenses of..... 1,489,711

Net decrease..... \$931,000

All lines west of Pittsburgh and Erie for the four months of 1883 show a deficiency in meeting all liabilities of \$57,187, being a decrease as compared with the same period of 1881 of \$1,467,298.

**Philadelphia & Reading.**—The Receivers' statement for April and the five months of the fiscal year from Dec. 1 to April 30 is as follows:

	April.	Five months.
Railroad Co.:		
Railroad traffic.....	\$1,597,490	\$642,790
Canal traffic.....	96,024	25,027
Steam coaliers.....	42,022	12,415
Richmond barges.....	3,570	*158
		\$5,725
Total R. R. Co.....	\$1,709,712	\$680,074
Coal & Iron Co.....	989,994	28,231
		\$3,151,320
Total.....	\$2,699,706	\$708,305
		\$3,386,866

\*Deficit.

Expenses do not include interest or rentals, the net earnings being the amount from which those charges are to be paid.

A comparison of net earnings is as follows:

	1882.	1881.	1882.	1881.
Railroad Co.....	\$980,074	\$541,410	\$3,151,320	\$2,774,521
Coal & Iron Co.....	28,231	38,629	235,646	248,856
Total.....	\$708,305	\$580,039	\$3,386,866	\$3,023,377

For the month the Railroad Company shows an increase of \$138,664, or 25.6 per cent., and both companies an increase of \$128,266, or 22.1 per cent. For the five months the Railroad Company shows a gain of \$376,699 or 13.6 per cent., and both companies an increase of \$363,489, or 12.0 per cent. The Coal & Iron Company shows losses both for the month and the year.

President Gowen has cabled over from London the following very sanguine letter, written by him in answer to questions propounded by Mr. Wm. Abbott:

"In reply to your favor of to-day, I have to say that there is nothing whatever, either in the traffic returns or the financial condition and prospects of the company, to warrant a fall in the price of the deferred income bonds or any other of its securities. The net earnings are fully up to my expectations. The gain for five months is \$363,489, of which \$128,263 was made in April. I expect an increase of \$1,000,000 in the year, or net earnings of \$11,000,000 against \$10,051,888 last year, and see no reason to doubt the correctness of the prediction I made at the Cannon street meeting on the 23d ult. that by July 1 the company will be prepared to resume full payment on all its obligations and to terminate the receivership. The threatened strike in the iron districts of Pennsylvania is in the coke and not the anthracite region. I have no knowledge of it except what I gather from the newspapers, and while I do not give much credence to the report, I can say that if the rumor is well founded the Reading Railroad Company, which supplies the anthracite iron district, would be as great a gainer from the stoppage of the coke iron manufacture as the British ironmasters would be if a strike prevented the production of iron in Belgium. Mr. Vanderbilt informed me yesterday that the new line he is constructing to connect the New York Central and Reading systems will be completed next December. Mr. Garrett, of the Baltimore & Ohio Railroad Company, designs connecting his system with our own, and has only been waiting the termination of the legal contest about the control of the Central Railroad of New Jersey, which was decided on Monday last by a decree of the Chancellor of New Jersey in our favor. The new line from Harrisburg to Pittsburgh, a part of which is now under contract, may be expected to be finished within two years. I estimate the increase of net earnings from these new avenues of traffic to be equal to 5 per cent. upon the share capital of the company, but irrespective of these new sources of revenue, I confidently expect the company to earn a dividend upon its common shares this year, and a further dividend upon the deferred income bonds in 1883."

**Pittsburgh, McKeesport & Youghiogheny.**—At a meeting held in Pittsburgh, May 26, the stockholders voted to authorize the execution of a mortgage and the issue of \$2,250,000 in 6 per cent. bonds.

**Placerville & Sacramento Valley.**—A suit is pending in the District Court, at San Francisco, by Louis McLaue, Trustee, to recover possession of this road for the benefit of the bondholders. The road runs from Sacramento, Cal., to Shingle Springs, 49 miles.

**Richmond & Allegheny.**—This company has completed its dock connection branch in Richmond, Va., which is thus described by the Richmond Dispatch: "The entire distance from Seventh street switch to the ship-lock is 1 1/4 miles, the distance to the end of the trestle proper is nearly one mile. The total fall from the upper basin to the dock level is 68 ft.; from the upper basin to mean water level in James River, 83 ft. This heavy fall in such short distance required a grade of 105.6 ft. to the mile, which grade is continued without break from Eleventh street to Twentieth street, or a distance of 3,700 ft. The highest point of the track is 60 ft. above the foundations. The depot lot of the Richmond & Danville Railroad Company is crossed overhead on two iron bridge spans, each 137 ft. long, resting on three granite piers.

"The location of the line in the midst of streets, houses, canal and locks, and many other requirements, being confined by foreign property on all sides, and the necessity of keeping up canal navigation during the greater part of the time given to construction, caused this work to require the greatest attention in design and construction. Field work was commenced on Oct. 14, 1881, which shows exactly seven months to have been required.

"The line has been constructed under the general supervision of Decatur Axtell, Vice-President. The location,

estimates and design were made and the work constructed under the direct supervision of Walter G. Berg, Engineer in charge, with H. Raasloff as Principal Assistant Engineer. Philip Eder, of Bound Brook, N. J., was contractor for the masonry piers of the bridge, the iron superstructure being built and erected by the Clarke Bridge Co., of Baltimore, Md. G. R. Williams, of the firm of Jesse E. Adams & Co., of Amherst County, was contractor for the erection of the main trestle work."

**Richmond, Fredericksburg & Potomac.**—Suit has been brought in the Circuit Court of Richmond, Va., for Douglas H. Gordon and others, against this company, the Board of Public Works and others, "to enforce the contracts between the holders of the guaranteed stock of the Richmond, Fredericksburg & Potomac Railroad Company and the holders thereof, as expressed on the face of said stock, and to have the rights of said holders passed on and enforced in respect to a participation in the dividends of said company, and especially under the resolution of its stockholders in general meeting in December, 1881, and the consequent action of its board of directors in issuing certificates known as dividend obligations to the holders of common stock."

**Richmond & Petersburg.**—The temporary trestle bridge over the James River at Richmond, Va., is completed, and trains cross it. It replaces the bridge burned some weeks ago. Work has been begun on the permanent iron bridge.

**Roane Mountain.**—A contract has been let to Campbell & Co., of Cincinnati, to build this road from Johnson City, Tenn., over Roane Mountain to the property of the Roane Iron Company in North Carolina, where rich deposits of iron ore have been found. The distance is about 80 miles.

**St. Johnsbury & Lake Champlain.**—The commissioners appointed by the Supreme Court to fix the toll which the Central Vermont shall receive for carrying freight for the road between Rouse's Point and Swanton have filed their report. The price established is 30 cents per ton, instead of 90 cents previously charged. The Supreme Court has heard arguments on the report, but has not yet given a decision.

**St. Joseph & Nebraska.**—This company has filed articles of incorporation to build a cut-off from Bigelow, Mo., on the Kansas City, St. Joseph & Council Bluffs road to a point opposite Rulo, Neb., on the Atchison & Nebraska. The road will be 10 miles long; it is controlled by the Chicago, Burlington & Quincy.

**St. Louis, Iron Mountain & Southern.**—Work is to be begun at once on a new branch from Newport, Ark., southeast to Hopefield, opposite Memphis. The distance is about 75 miles.

**Sanford & Indian River.**—Surveys have been begun for this road, which is to run from a point on the South Florida road, near Sanford, Fla., by Ft. Reed, to a point on the Indian River.

**San Pete Valley.**—This company has decided to build an extension from Wales, Utah, southward to Manti, 20 miles, and also one northward from Nephi to Springville, to connect with the Salt Lake Extension of the Denver & Rio Grande. Surveys are now being made for both extensions. The road is now in operation from Wales to Nephi, 30 miles.

**Seaboard & Raleigh.**—The grading of this road is now finished from Williamstown, N. C., east to Bethel. The ties have been distributed along the line, and tracklaying has been begun.

**Securities on the New York Stock Exchange.**—The following securities have been placed on the lists at the New York Stock Exchange:

Chicago, Milwaukee & St. Paul, \$500,000 additional Chicago & Pacific Division 5 per cent. bonds, Nos. 10,301 to 10,800 inclusive.

Ft. Worth & Denver City, \$800,000 stock and \$800,000 first mortgage bonds.

Illinois Central, \$1,600,000 Springfield Division 6 per cent. coupon bonds, and \$600,000 Middle Division 5 per cent. registered bonds.

South Cook County Elevated.—This projected road is to start from Adams street, near Wabash avenue in Chicago, and run through some minor streets and Archer avenue to the city line, and thence through the towns of Calumet and Lake. It is said that a large part of the right of way through the suburban towns has been secured.

**Union Pacific.**—On the Oregon Short Line 23 miles of track have been laid from Pocatello, Idaho, the crossing of the Utah & Northern, southeasterly to a point near American Falls, and track was some time ago laid for 64 miles west by north from the main line at Granger, Wyoming. Grading is in progress between Soda Springs and Wood River.

**Wabash, St. Louis & Pacific.**—Dispatches from Atchison, Kan., state that this company has concluded an agreement under which it will have the right to run trains over the Chicago, Rock Island & Pacific track from Plattsburg, Mo., to Atchison.

**Warren & Farnsworth Valley.**—This company has been organized to construct a line from North Clarendon, Pa., on the Philadelphia & Erie Division of the Pennsylvania Railroad, to the junction of Minister Creek with the Tionesta in Forest County, where it will connect with a line to be built by the Forest Railroad Company. The latter line is to extend to Marien, Forest County, to connect with the Pittsburgh, Bradford & Buffalo Railway, the line from Foxburg on the Allegheny Valley Railroad to Marien. The preliminary survey of the entire line to the Tionesta has been completed. The road is now in course of construction from North Clarendon to Garfield, the new oil town now springing into being; the distance to Garfield is a trifle over nine miles. The main line of the road passes over the summit of the ridge at an elevation of 498 feet above North Clarendon. This leaves Garfield in the cold about half a mile to the northwest, but at station No. 440 a three-quarter mile spur from the main line turns off and ends at an elevation of 523 ft. just back of that city. The Engineer-in-Chief is Mr. A. D. Wood, and the contractor Mr. P. H. Towel, both of Warren. The latter now has 302 men clearing and grading the line, for which ground was broken April 24, and about four miles of which are ready for the ties and iron. The maximum grade is 105 ft. to the mile, and the sharpest curve does not exceed 20 degrees to 100 ft. The line follows the course of the stream (Farnsworth Run) to the summit of the ridge. A half-mile from the start at North Clarendon it crosses the west branch of the Tionesta, and for four miles runs along the east bank of the run; then crossing the stream, it follows the west bank to the Summit Station.

**Washington & Ohio.**—This road will not be resold, the purchasers at the former sale having completed the purchase by complying with the terms of sale to the satisfaction of the Court. They have organized the Washington & Western Company, and say that they will at once begin the extension of the road westward.

**West & East.**—Track has been laid on this road from Durant, Miss., on the Chicago, St. Louis & New Orleans road, west to Gray's Mills, seven miles. Grading is nearly finished to Lexington, 5 1/4 miles further.

## ANNUAL REPORTS.

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## Concord.

This company owns the Concord Railroad, from Nashua, N. H., to Concord, 35 miles; the Hooksett branch, 7 miles; the Epping Branch, 1 mile, and the Manchester & North Weare road, 10 miles; also, substantially, the Nashua, Acton & Boston road, 20 miles. It leases the Concord & Portsmouth road, from Manchester, N. H., to Portsmouth, 40.5 miles, and the Suncook Valley road, from Hooksett to Pittsfield, 10.5 miles, making 82 miles owned and 142 miles worked. The report is for the year ending March 31.

The Epping Branch was built during the year, and the purchase of the Nashua, Acton & Boston (previously leased) was completed. The road is now worked under an agreement with the Boston & Lowell, as shown more fully below.

The balance sheet, condensed, is as follows:

Stock.....	\$1,500,000.00
Det. and contingent.....	110,896.03
Notes payable.....	250,000.00
Interest and rental accounts.....	92,049.96
Manchester & Lawrence R.R.....	42,175.58
Sundry accounts.....	58,484.33
Concord improvements and through cars.....	58,000.00
Unpaid dividends.....	5,055.00
May dividend.....	75,000.00
Total.....	\$2,191,600.90
Construction.....	\$1,500,000.00
Wharf at Portsmouth.....	51,507.72
Mt. Washington R.R.....	173.61
Suncook Valley R.R.....	63,060.00
Manchester & Keene R.R.....	91,278.47
Nashua, Acton & Boston R.R.....	30,000.00
Boston, Lowell & Concord joint acct.....	180,649.62
Through line freight cars.....	99,750.00
Bills receivable, etc.....	67,340.69
Cash.....	107,900.70
	2,191,600.90

The bills payable were added to the liabilities during the year. The company has no bonded debt of any kind.

The traffic for the five months to Aug. 31, 1881, when the contract with the Boston & Lowell took effect, was as follows:

Passengers carried.....	298,644
Passenger miles.....	6,874,396
Tons freight carried.....	314,095
Ton miles.....	14,667,975

For the five months the Nashua, Acton & Boston road carried 27,986 tons of freight 454,919 miles.

The traffic of both roads (Boston & Lowell and the Concord) for seven months under the joint agreement was as follows:

	Through.	Local.	Total.
Passengers carried.....	200,385	2,373,312	2,573,697
Passenger miles.....	8,178,150	28,385,038	36,563,188
Tons freight carried.....	598,540	492,942	1,091,482
Ton miles.....	29,457,959	13,812,745	43,270,704

The train mileage of the Concord Railroad for the year was as follows:

	1881-82.	1880-81.	Inc.	P. c.
Passenger.....	240,837	220,440	20,397	9.2
Freight.....	326,038	305,769	20,269	6.6
Service.....	39,006	198,191	22,271	11.4
Switching.....	178,856			
Total.....	785,337	722,400	62,937	8.7

The increase in train mileage was very considerable. The total mileage was equivalent to 5,570 miles per mile worked.

The earnings for the year were as follows:

	1881-82.	1880-81.	Inc.	P. c.
Freight.....	\$699,287	\$560,306	\$138,981	17.3
Passengers.....	438,906	328,801	110,105	33.4
Mail and express.....	29,829	19,716	10,113	0.4
Miscellaneous.....	90,398		90,398	
Total.....	\$1,258,420	\$955,001	\$303,419	31.8
Expenses.....	787,211	592,392	194,819	32.9

Net earnings..... \$471,209  
Gross earn. per mile..... 8.255  
Net "..... 3.342  
Per cent. of expenses..... 62.52

Expenses include all renewals and improvements.

During the year a new locomotive, 50 coal, 29 flat and 7 box were built, and 165 box cars were bought. There are



now under construction 4 passenger, 1 baggage and 50 coal cars.

During the year 610 tons steel rails, 19 tons iron rails and 56,949 new ties were used. A branch one mile long to the camp-meeting grounds at Epping, and 14,252 feet of new sidings were built. Several new bridges were built and other improvements made.

Payments from net earnings were as follows:

Net earnings.....	\$471,208.83
Tax on capital stock.....	\$37,905.62
Manchester & Lawrence R. R.....	68,791.93
Rents of leased lines.....	46,211.50
On account of Nashua, Acton & Boston.....	110,000.00
Improvements and new cars.....	58,000.00
Dividends, 10 per cent.....	150,000.00
	470,909.05

Balance.....\$209.78

The purchase of the stock of the Nashua, Acton & Boston road was completed, and that road is now substantially owned by this company. The company also bought one-half interest in the Manchester & Keene road at judicial sale, the Boston & Lowell taking the other half interest.

The report refers to the contract made in August, 1881, with the Boston & Lowell for the joint working of the two roads. This contract, as we have heretofore noted, was decided by the New Hampshire Supreme Court to be illegal, as being a partnership and therefore contrary to the law.

The report says: "The Supreme Court having given this opinion, said contract has been abrogated and annulled, and a business arrangement has been made in conformity with the following votes, viz:

"That the Supreme Court of the State of New Hampshire having pronounced an opinion upon the validity of the contract of Aug. 19, 1881, between the Concord Railroad Corporation and the Boston & Lowell Railroad Corporation, said contract is hereby abrogated and annulled on and after April 30, 1882; that this corporation form a business connection with the Boston & Lowell Railroad Corporation (said Boston & Lowell Railroad Corporation by similar vote assenting and agreeing thereto), commencing May 1, 1882, to continue until September 1, 1886; that this corporation will accept 40 per cent. of the gross income under said business connection as its proportion thereof; that this corporation will assume and pay 40 per cent. of the amount of the gross expenses under the above business connection; that no changes of the present local or through rates of transportation shall be made without the approval of the directors; that Henry C. Sherburne be and he is hereby appointed Manager of this corporation under said business connection; that C. E. A. Bartlett be and he is hereby appointed Cashier of this corporation under said business connection, and that he shall give satisfactory bond for the faithful performance of his duties; that the connection provided for by the preceding votes is intended to secure to this corporation, so far as can be legally done, substantially the same relative pecuniary results that would have resulted under the contract of Aug. 19, 1881, except that this corporation shall not be liable for any risks of employees, passengers or freight on the local business of any other road than the roads of this corporation."

The road is now worked under this contract, which has so far proved very advantageous to the companies and the public.

#### Indianapolis & St. Louis.

This company owns a line from Indianapolis, Ind., to Terre Haute, 71.84 miles. It leases the Carbon & Otter Creek Valley road, 1.60 miles, and the St. Louis, Alton & Terre Haute, from Terre Haute, Ind., to East St. Louis, Ill., 189 miles, with a branch to Alton, Ill., 4.20 miles. The total road worked is 266.64 miles. The following are the only statements which have been published for the year 1881:

The stock is \$600,000 in amount, and is owned in equal shares by the Pennsylvania Company and the Cleveland, Columbus, Cincinnati & Indianapolis. The latter company has large claims for advances made.

The bonded debt consists of \$2,000,000 first-mortgage, \$1,000,000 second-mortgage and \$500,000 third-mortgage or equipment bonds. For three years past interest has been paid on the first-mortgage bonds only.

The traffic reported is as follows:

	1881.	1880.	Increase.	P. c.
Passengers carried.....	439,560	319,394	120,166	37.7
Tons freight carried.....	1,251,816	920,120	331,697	36.1
Ton miles.....	196,029,304	148,842,248	47,187,056	31.7

A large part of the business is through traffic, which was carried last year at very low rates.

The earnings for the year were as follows:

	1881.	1880.	Increase.	P. c.
Earnings.....	\$2,048,651	\$2,069,922	\$38,729	1.9
Expenses.....	1,434,356	1,401,107	33,249	2.4
Net earnings.....	\$614,295	\$668,815	\$54,520	8.2
Gross earn. per mile.....	7.687	7.538	149	1.9
Net earn. per mile.....	2.304	2.283	21	0.9
Per cent. of exps.....	70.01	69.71	0.30	...

The expenses are exceedingly heavy on account of the number of large bridges built, the damage from accidents and extensive improvement all along the line. Thirty-three miles of steel rails and 140,000 ties were laid; two reservoirs having a capacity of 6,000,000 gallons were erected; and six iron bridges were built over the largest streams on the line. Had freight and passenger rates been maintained throughout the year, the earnings would have been unusually heavy. The bulk of improvements contemplated at the beginning of the year has been made, and the expenses for the present year will be comparatively small.

From other statements published, it appears that the earnings for 1881 were divided between the Indianapolis & St. Louis proper and the leased line as follows:

	I. & St. L.	St. L., A. & T. H.	Total.
Earnings.....	\$687,632	\$1,361,019	\$2,048,651
Per mile.....	9.380	7.119	7.680

The lease of the St. Louis, Alton & Terre Haute is in litigation, and, pending a decision in the suit, the lessee is required to pay into Court 30 per cent. of the gross earnings of the leased road; this amounted last year to \$408,305.72.

Since the end of the year a decree of foreclosure of the second mortgage has been granted, and a receiver appointed pending the sale of the road.

#### Georgia.

This road includes a main line from Atlanta, Ga., to Augusta, 171 miles, with branches from Camak to Macon, 78 miles; Barnett to Washington, 18 miles, and Union Point to Athens, 40 miles, making 307 miles in all, of which 157 miles are laid with steel rails. There are 84.25 miles of sidings.

The equipment consists of 41 engines; 36 passenger and 9 baggage, mail and express cars; 593 box, 28 stock, 156 platform, 106 coal and 19 caboose cars; 22 service cars.

From April 1, 1881, the road has been leased to Wm. M.

Wadley at a fixed rental of \$600,000 per year, which is sufficient to pay all interest charges and about 11 per cent. on the stock.

Through the courtesy of the officers of the road, we have been furnished with the following statements of its operations for the year ending March 31, 1882. Comparisons are made with the previous year, when the road was worked by the company.

The traffic for the year was as follows:

	1881-82.	1880-81.	Increase.	P. c.
Train miles.....	1,124,822	1,137,156	D. 12,334	1.1
Passenger.....	316,003	316,003	0	0
Freight.....	737,803	737,803	0	0
Service.....	70,026	70,026	0	0
Total.....	1,124,822	1,137,156	D. 12,334	1.1
Passengers car'd.....	239,998	239,998	0	0
Passenger miles.....	15,659,939	15,659,939	0	0
Tons frt. carried.....	344,579	378,505	D. 33,926	9.0
Ton miles.....	45,705,074	49,961,644	D. 4,256,570	8.5
Aver. train load.....	49.56	49.56	0	0
Passengers, No.....	61.04	61.04	0	0
Freight, tons.....	61.04	61.04	0	0

The statement shows a decrease in freight traffic. The average passenger train load is a very good one, and indicates an active passenger business, especially when it is considered how large a proportion of the mileage is in branches, with a lighter travel than on the main line.

The earnings for the year were as follows:

	1881-82.	1880-81.	Increase.	P. c.
Freight.....	\$903,864	\$1,031,751	D. \$128,887	12.0
Passage.....	378,478	305,022	I. 73,456	24.1
Mail and express.....	43,781	32,162	I. 11,619	36.2
Miscellaneous.....	100,954	100,954	0	0
Total.....	\$1,427,077	\$1,369,955	I. \$57,122	4.1
Expenses.....	770,115	955,443	D. 185,328	9.0
Net earnings.....	\$656,962	\$414,512	I. \$242,450	58.5
Gross earn. per mile.....	4.448	4.402	I. 46	1.0
Net ".....	2.140	1.350	I. 790	58.5
Per cent. of exps.....	53.97	69.74	D. 15.77	...

Expenses last year were made up as follows: Maintenance of way, \$148,007.14; rolling stock, \$422,021.07; transportation, \$191,171.33; miscellaneous, \$4,918.28; taxes, \$3,196.97; total, \$770,114.79.

Some of the differences above may possibly be accounted for by changes in the system of keeping accounts. The reduction in expenses is very large.

Payments from net earnings reported by the lessee were: Settlements, \$207,370.67; extension of Athens Branch, \$16,409.22; total, \$223,779.89, leaving a balance of \$433,111.96.

This balance is \$166,888.04 less than the rental for the year, indicating a loss to the lessee. It will be noted, however, that the net earnings for the year were considerably larger than the amount required for rental.

#### Delaware, Lackawanna & Western Leased Lines.

The following figures for the operations of the lines in New Jersey leased by the Delaware, Lackawanna & Western Company are from the reports made to the State Comptroller for the year 1881, in pursuance of law:

MORRIS & ESSEX.

This road includes the main line from Hoboken to Phillipsburg, 83.68 miles; the Bonton Branch, a loop from Bergen Junction to Denville Junction, 34.54 miles; the leased Newark & Bloomfield road, from Roseville to Montclair, 4.25 miles, and the Chester Railroad, from Chester Junction to Chester, 10 miles; a total of 118.22 miles owned by the Morris & Essex Company, and 132.47 miles worked. The capital account is as follows:

Stock.....	\$15,000,000 00
Bonds.....	20,713,000 00
Total.....	\$35,713,000 00
Cost of road and equipment.....	\$34,636,216 10

The stock is \$126,882 per mile; bonds, \$175,207 per mile; cost of property, \$292,981 per mile, making the road one of the most costly in the country. The property, however, includes a large and very valuable terminal property at Hoboken.

The bonded debt was increased \$590,000 during the year. Cost of road decreased \$74,618.40 from the last report.

The earnings for the year were as follows:

	1881.	1880.	Increase.	P. c.
Passengers.....	\$1,065,644	\$965,836	\$99,808	10.3
Freight.....	2,940,124	2,645,081	295,043	11.1
Other.....	240,889	212,135	28,754	13.6
Total.....	\$4,246,657	\$3,823,052	\$423,605	11.1
Expenses.....	2,599,637	2,377,459	222,178	9.3
Net earnings.....	\$1,647,020	\$1,445,593	\$201,427	13.9
Gross earn. per mile.....	32.058	28.864	3.194	11.1
Net ".....	12.433	10.917	1.516	13.9
Per cent. of exps.....	61.22	62.18	0.96	...

Expenses included all renewals and repairs and also new equipment bought.

The payments by the lessee are not stated. The rental is 7 per cent. on the stock and bonds; assuming interest to have been paid half the year on the additional bonds, this would have required \$2,479,260. The rental of the Newark & Bloomfield is \$6,231, and of the Chester road, \$7,000, making a total of \$2,492,481, and showing a loss of \$845,461 to the lessee for the year.

WARREN.

This road is used as part of the main line; it extends from Hampton Junction to the Delaware River, 18.25 miles. The capital account is as follows:

Stock.....	\$1,800,000 00
Bonds.....	1,350,000 00
Due lessee.....	13,171.49
Total.....	\$3,163,171.49
Cost of road.....	3,163,171.49

The cost of road is \$173,324 per mile, which appears enormous, as there is no expensive terminal property or similar works.

The earnings for the year were as follows:

	1881.	1880.	Increase.	P. c.
Passengers.....	\$34,544	.....	.....	.....
Freight.....	532,602	.....	.....	.....
Other.....	6,088	.....	.....	.....
Total.....	\$593,234	\$490,028	\$103,206	21.1
Expenses.....	247,930	212,117	35,813	16.9
Net earnings.....	\$345,274	\$277,911	\$67,363	24.2
Gross earnings per mile.....	32.506	26.851	5.655	21.1
Net ".....	18.919	15.255	3.664	24.2
Per cent. of expenses.....	41.80	43.29	1.49	...

The rental of the road is 7 per cent. on the stock and bonds; it amounted last year to \$220,500, showing a profit of \$124,774 to the lessee.

#### Manchester & Lawrence.

This company owns a line from Manchester, N. H., to the Massachusetts line, 22.4 miles, and leases the Methuen Branch of the Boston & Maine, from the state line to Law-

rence, Mass., 3.7 miles, making 26.1 miles worked. The report is for the year ending March 31.

A large part of the business is done jointly with the Concord Company under parole agreement.

The stock is \$1,000,000; the company has no debt.

The earnings were as follows:

	1881-82.	1880-81.	Increase.	P. c.
Traffic earnings.....	\$131,056	\$123,395	I. \$7,661	6.2
Concord Co., joint business.....	68,792	62,247	I. 6,545	10.5
Total.....	\$199,848	\$185,642	I. \$14,206	7.6
Expenses.....	90,649	85,202	I. 5,447	17.0
Net earnings.....	\$109,199	\$100,440	D. \$8,759	8.7
Gross earn. per mile.....	7.657	7.113	I. 546	7.6
Net ".....	3.839	3.848	D. 9	0.2
Per cent. of exps.....	49.87	45.90	I. 3.97	...

From the net earnings dividends of 10 per cent. were paid, amounting to \$100,000, leaving a surplus of \$199 for the year.

The directors' report says that the expenditures made on the roadbed, tracks, rolling stock and fixtures have kept the road and property of the corporation, as a whole, in good repair, and in suitable condition for the efficient transaction of its business. The report says:

"The arrangements with the Concord Railroad, which were in progress at the date of the last report, and by which it was hoped that all the unsettled matters with that corporation would be adjusted on a satisfactory basis, have not been brought to a final settlement, nor have the respective rights of the two corporations in the Manchester & North Weare Railroad, or in the stock of the latter corporation, been clearly defined. These negotiations are still pending, and although the settlement has been delayed, the directors have no doubt that they will be finally determined in a manner that will leave no substantial cause of difference between the two corporations."

#### Central Iowa.

This company works a line from Ottumwa, Ia., to Mason City, 171 miles, with 119 miles of branches, making 290 miles in all. Of the branches 100 miles were added during the year 1881, which is covered by the last report.

The report gives no balance sheet or statement of capital account. A line is in progress which will give the road an eastern outlet to Keittsburg and Burlington on the Mississippi.

The earnings for the year were as follows:

	1881.	1880.	Increase.	P. c.
Freight.....	\$733,910	\$696,666	I. \$37,244	4.0
Passengers.....	218,283	212,591	I. 5,692	2.7
Mail, etc.....	59,174	52,929	I. 6,245	11.8
Total.....	\$1,001,367	\$962,076	I. \$39,291	4.1
Expenses.....	711,742	620,778	I. 90,964	14.6
Net earnings.....	\$289,625	\$341,298	D. \$51,673	15.2
Gross earn. per m.....	4.247	5.094	D. 857	16.8
Net ".....	1.217	1.796	D. 579	32.2
Per cent. of exps.....	71.07	64.50	I. 6.57	...

Expenses in 1881 included the laying of 3,410 tons of steel rails. The extra cost of working the road caused by heavy snows in the winter and freshets in the spring was \$60,408.96.

The road carried 508,655 tons of freight in 1881 and 399,550 tons in 1880, an increase of 109,105 tons, or 27.3 per cent. The average rate per ton per mile was 1.94 cents in 1881, and 2.06 cents in 1880.

The income account, condensed, was as follows:

Balance from 1880.....	\$308,261.58
Earnings for the year.....	1,001,366.51
Collections on old accounts.....	26,690.66
Due on vouchers and accounts.....	135,943.55
Total.....	\$1,472,262.30
Balance from 1880.....	\$97,307.96
Expenses for the year.....	711,741.51
Additions to property.....	85,272.29
Sundry accounts.....	954.88
Interest on first-mortgage bonds.....	259,000.00
	1,154,231.64

Cash, materials, accounts receivable, etc., \$320,130.68

The report says: "The earnings of March, 1880, alone, were more than the earnings of both February and March, 1881, and the difference between the earnings of these corresponding months in two years, a reduction of \$60,559 in 1881, was not compensated by any reduction of expense, but on the contrary the cost of operation was enhanced during these two months. Nor can it be assumed that earnings not realized at the time were postponed to appear thereafter as deferred earnings. In 1881 the snow blockade while suspending operations both on the Central and other lines to the north of it, prevented the considerable earnings from the transportation of coal ordinarily expected in the months of February and March. And although there has been an enlargement of coal traffic in 1881, it appears in the last half of the year; the first half showing 793 car loads of coal less hauled to Minnesota in 1881 than 1880.

"The sums for additions and improvements, appearing in the trial balance annexed, aggregating \$85,272.29 were expenditures demanded by the growing requirements of the company.

"Additional rolling stock creates a want of additional tools and new buildings, more especially stalls for locomotives. The want of more turnouts for passing trains has been a serious obstacle to safe and prompt despatch of business; and, notwithstanding the side tracks already provided, more must be built to afford suitable room for moving trains.

"The yard room and general office at Marshalltown have, with some very contracted variations, remained the same for ten years until both were of far too cramped and limited proportions.

"To arrange these needed improvements a large amount of filling was absolutely indispensable. The yard should be enlarged, and if, upon the manifestly practical plan, the old office must give place for new tracks, otherwise the cost might have been distributed over two rather than have so large an outlay comprised in one year's operation.

"Marshalltown has become a large distributing point. To illustrate its importance it may be sufficient to say that 7,859 cars of coal were delivered from that station to the Northwestern Railway in 1881, and of course as many empties were there received, and the trains bound north and south over the whole line are there made up, and it is at Marshalltown that the principle repairs of rolling stock are made, for which very inadequate room was given.

"All the improvements that have been made were essential to judicious management. It is over ten years since the road was built, and such have been the vicissitudes of its managements, that until recently the more moderate the outlays for improvements, the more nearly those in authority came to the performance of their duty. Meanwhile the traffic has doubled and is steadily growing—this flow of business cannot be economically conducted and its growth maintained without the facilities usual to good management are afforded."



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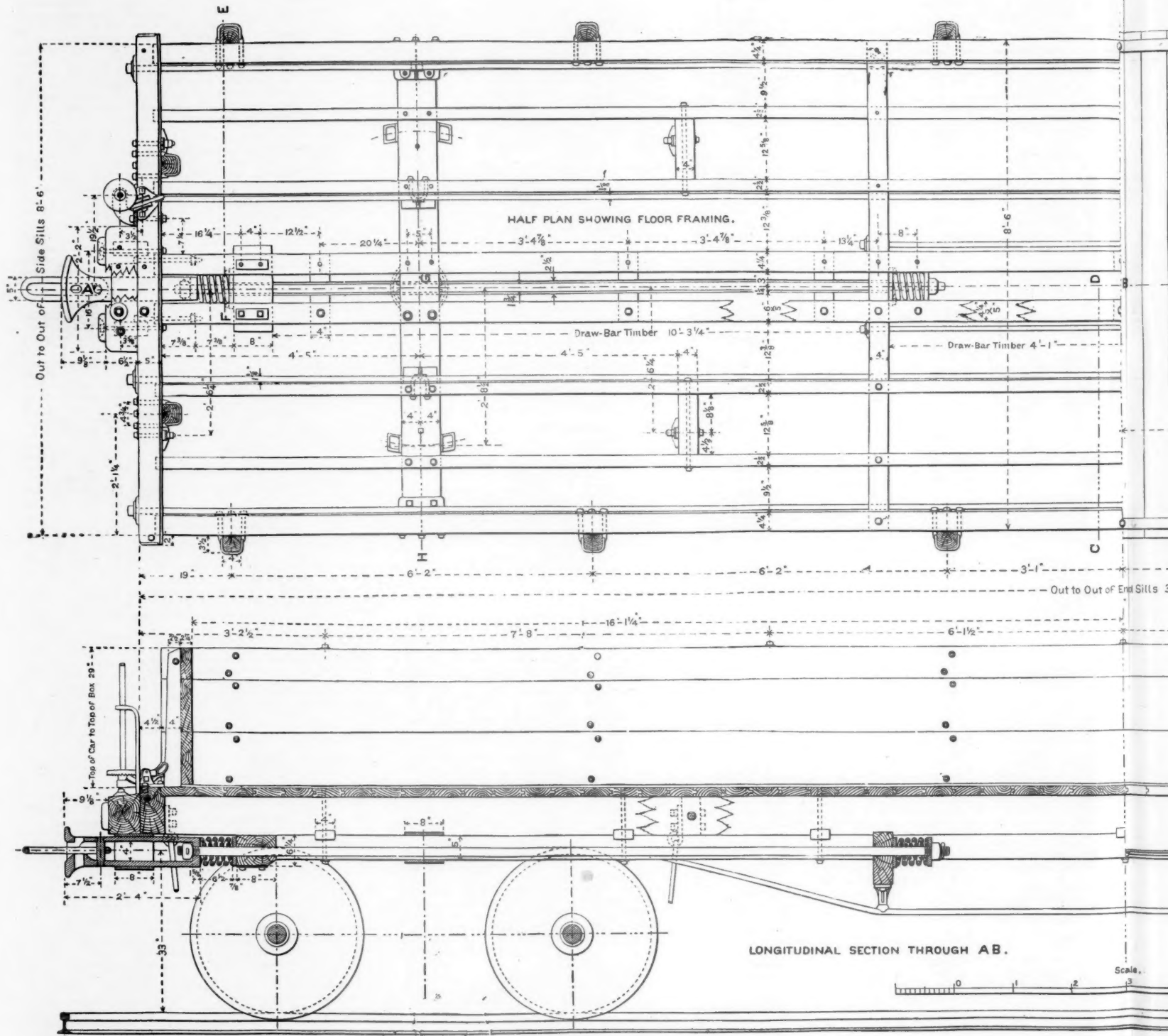
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STANDARD GONDOLA OR F

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NEW YORK CENTRAL & HUDSON RIVER RAILROAD

Leander Garey, Superintendent



